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THE RELATIONS OF GYNECOLOGY TO GENERAL SURGERY PAST AND PRESENT *

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DETROIT

The following more or less desultory and somewhat reminiscent remarks for which I ask your kind indulgence are given not for any exact historical value which they may contain but more as a sort of reminder lest we forget

As I began the study of medicine while the development of the science of gynecology as a specialty was in its infancy and that of abdominal surgery practically in the stage of incubation and as I have had the opportunity of over forty years of observation, as a physician, to note the many brilliant achievements not only of the fathers of our specialty, but also of many of their successors and to observe as well during this time the relative and comparative running capacity (to use a sporting term) between the gynecologist and the general surgeon it would seem well in this day of Prussianistic surgery that I should consider a few of the alphas of success and perhaps to attempt a little in the line of prognostication regarding the trend of surgical thought and practice toward the omega of relationship between the gynecologist and the surgeon

My early professional training was conducted in the surgical atmosphere surrounding such men as J Marion Sims Thomas Addis Emmett, T Gaillard Thomas, Willard Parker, F M Markoe James R Wood, Lewis A Sayre, and others of lesser note in this country, and Schroeder, Martin and Langenbeck of Berlin, Billroth of Vienna, and Tait of England Having come into personal contact, as a pupil, with some of these early masters, I can realize, after this lapse of time, how profoundly their influence has tended to shape the destinies of the present

In any discussion of this or kindred subjects, we must not forget to consider certain of Nature's laws —those silent, ever active, immutable forces These well known and generally accepted principles which automatically govern the development of the various species in the animal kingdom, which we are taught to term evolution, survival of the fittest, struggle for existence, etc, proceed with their accustomed steam-roller efficiency in other affairs of the genus *Homo* beside that which pertains to the development of the species h[illegible]

The twentieth century is ushering in a period of kaleidoscopic changes, of Aladdin-like transformations in everything pertaining to the activities of man Science, the arts business, society, finance, methods of warfare — all are feeling the jolts of the erratic and rapid pace of this great evolutionary present-day thrust We are living in a new world in which habits and customs venerated by centuries of usage, are dropped without ceremony and without apparent effort or regret and the new is blithely taken on, all in the name of progress The horse bids fair, soon, to become extinct as a domestic animal, perhaps to revert to the wild state of his ancestors, and be captured and exhibited by future generations of man, as a curiosity, along with the gnu, zebra and giraffe

The air has been conquered and space annihilated on land and on the water and in the air, previously impregnable fortresses and strongholds are now quickly wiped out by the touch of science The once preposterous imaginary creations of Jules Verne, considered only as romantic and interesting fiction, are now materialized, and the resultant steel monsters threaten the destruction of a world's commerce Government of the most autocratic form, founded on centuries of despotic power, now vanishes in a night, to be swiftly and peacefully succeeded by liberal democracy

In finance the numbers soar higher and higher until the common consideration of the most fabulous sums ceases to awe the beholder Efficiency is now the watchword of education In mechanics, handwork is replaced by the machine-made Everything is manufactured in great numbers, with duplicate interchangeable parts Similar kinds of manufacturing business are combined under one head, resulting in more economic production and better goods This results in small business remaining small or going to the wall The same spirit of big business is permeating the medical profession, as witness the elimination of the family doctor and the advent of the "group medicine" idea Especially is this change true of the practice of surgery A German physician, on visiting one of our greatest surgical centers, characterized it as *eine grosse chirurgische Fabrik* Truly a surgical factory —a factory in which the product is turned out in immense quantity and also of good quality

PLACE OF THE GYNECOLOGIST IN SURGERY

Is it not time that we ask what place, if any, the gynecologist has, or will have, in the near future, in the field of surgery, and will these various surgical manufacturing industries that are endeavoring to emulate the *Fabrik* spoken of by the German physician have a place for the woman's doctor, or will the general surgeon be the whole "factory"? The general surgeon is, octopus-like, progressively absorbing more and more of the surgical specialties As soon as one is perfected, he takes it over, and this policy of adaptation will no doubt continue The tonsils and adenoids, the pleural cavity, the perineum and cervix, the uterus and adnexa are now his The abdomen and pelvis were presented to him by the gynecologic pioneers, and were quickly absorbed as soon as their operative technic was perfected While in his abdominal work he may now be said to have "arrived," his gynecologic efforts frequently exhibit a hesitant and unfamiliar technic

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* Chairman's address read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty Eighth Annual Session of the American Medical Association New York, June, 1917

What did the general surgeon of the time of Sims, Emmett, Thomas and Tait know, or even care, about gynecology? Gynecology was carefully avoided by the surgeons of that day, and its practice outside of the recognized medical centers was usually relegated to the family physician, whose greatest pride was often manifested by the ability to introduce a bivalve speculum, and whose therapeutics began and ended in the use of tincture of iodin and the glycerin tampon

This certainly was the gynecologic status in a general hospital of which I was house physician and superintendent for three and a half years of my early professional life, and from my knowledge of other hospitals of that time, I think the picture is not overdrawn

From this work, which the surgeon of that day scorned, the gynecologist built up and perfected the system of surgery of the female genitalia, and from that upward, progressively, the surgery of the pelvic and abdominal cavities, which forms not only the basis but the whole superstructure of that work today

The gynecologist was the pioneer in all of this great surgical specialty evolution The general surgeon was his follower Whether he shall now become, in turn, the master and the gynecologist the follower (or possibly only an onlooker) will no doubt be relentlessly determined by the before-mentioned natural laws

The hospital previously referred to (Harper Hospital of Detroit) now grinds out an average of over thirty surgical operations a day Comparative statistics from its records are interesting as illustrating the point just made During the year 1897 (a year taken at random, twenty years ago) 709 operations, of which 360 were abdominal sections, were performed by gynecologists and general surgeons Of the abdominal sections, 304 were made by gynecologists and 56 by general surgeons — about 84 per cent for the gynecologists and 16 per cent for the general surgeons The same statistics for the year ending Dec 31, 1916, are given in the accompanying tabulation

OPERATIONS AT HARPER HOSPITAL IN 1916

	No	Per Cent
Surgical operations made by general surgeons and gynecologists	4,412	
Abdominal sections	2,652	
Made by gynecologists	384	14 5
Made by general surgeons	2 268	85 5

It will thus be seen that in the abdominal work the tables have been completely turned during the last twenty years It will also be noted, if this exhibit is a fair average of the general surgeon's work everywhere, that he is now doing more abdominal work than all of his other work combined, so that if the average of abdominal work over general surgery continues to increase for the next twenty years as it has for the last two decades, it requires little mathematical calculation to figure the general surgeon out of everything but his abdominal work Another of Nature's laws to be vindicated, perhaps!

If the gynecologist is thus shown to be no longer the predominating factor in abdominal surgery, what will be his position in the evolutionary processes twenty years hence? Will he pick up the bones cast aside by the general surgeon, in his lust for the peritoneum, and go on his way rejoicing, himself in turn becoming a general surgeon or will he be driven into the vast and prolific field of obstetrics — untouched, as yet, by the tentacles of the octopus?

For this popularizing of the operation of abdominal section with its present-day success, attending the work of many surgeons, the general adoption of two essentials in technic is responsible, in my opinion I refer to asepsis, and treatment of the pedicle by the absorbable ligature From the period of Lister's first teaching that it was something pathogenic that entered the peritoneal cavity through the wound during the operation, and not trauma of the peritoneum, which caused postoperative peritonitis, up to the finished evolution of the present method of absolute cleanliness and asepticism, the road has not been smooth and unobstructed, as we all know Those of us who have operated in a room foggy with phenol spray, and used strong antiseptics to kill the germs on the instruments, hands and dressings, those who used enormously strong silk ligatures, which in some cases were left long, with the wound open, so that the knot could be withdrawn when the stump of the pedicle sloughed, those who used horrible clamps to get away from the ligature, and saw patients die, or struggle through a weary convalescence, can best appreciate the standard methods of today — the methods which make it possible for the general surgeon to do this work as commonly as the more ordinary operations of the past It seems but a short and natural step from Ephraim McDowell's buckskin ligature, used in the first ovariotomy, to the catgut of today, but it took a long time, much experimentation and the cost of many lives to learn this one simple detail of technic

THE DEVELOPMENT OF ABDOMINAL SURGERY

In the foundation of the development of the operation of abdominal section, humanity and the medical profession are greatly indebted to a gynecologist Lawson Tait, though much maligned and criticized by the surgeons of his day, not only threw brilliant light on the pathology of the pelvic organs, but also contributed a technic that is not only practical today, but has made possible other surgical procedures within the peritoneal cavity I believe his success was largely owing to boldness in attacking adhesions, especially those occurring in connection with pyosalpinx, the pathology of which he was the first to elucidate clearly To illustrate the uncertain attitude of surgeons in respect to pelvic adhesions At about the year 1890, finding my pelvic work hampered by a fear of these adhesions, I asked a well-known gynecologist how he treated them He said if he could not break them up by the force exerted, by spreading apart the index and middle fingers, he let them alone Shortly after this time I visited Mr Tait in Birmingham, and while assisting at a difficult salpingectomy I asked him the same question His answer was quite different and well worth the cost of the European trip He said "A man without a good forearm better not undertake it"

In my opinion Tait did much to popularize the split-flap method of perineorrhaphy, which has now justly, almost completely supplanted that of superfi cal denudation. Tait, like most pioneers, was wont to go straight to the root of things. He paid little attention to what he considered unessential details—especially in the matter of cosmetic effects—passing them over with apparent unconcern and aiming only at the solution of the fundamental surgical problems. His perineorrhaphy technic was unique and startling. He would proceed to the bedside of the patient who was already anesthetized and across the bed in the lithotomy position then, sitting sidewise on a low ottoman by the bedside a bunch of silkworm gut sutures placed conveniently in his mouth (!) Sims angular scissors in one hand and a fully curved handled needle in the other, he operated practically without assistance in from five to seven minutes' time. No painstaking dissection was made. From three to five deep incisions (according to second or third degree of rupture) with the sharp pointed scissors sufficed to lay open the tissues in the direction of the ruptured and retracted muscles and fascia then with the other hand the large needle was passed, and the suture taken from the mouth and threaded with the hand holding the scissors. The sutures were placed so as to include all the tissues but the skin margins which were left without further suturing.

While the technic described would offer much to criticize (although the method allowed good drainage in the event of very probable sepsis) the simplicity and effectiveness of the operation were evident at a glance. By it the ruptured and retracted tissues were reached and reunited which made the demonstration a graphic revelation in surgical mechanics that left no doubt in the mind of the observer of the value of its fundamental principle.

Sims' operation for vesicovaginal fistula was an epoch-making procedure, as it probably had more influence than any other in placing the specialty of gynecology on a firm foundation. The technic as taught by Sims was at once accepted in this country and in Europe.

Not so readily, however, was Emmett's operation of trachelorrhaphy accepted abroad. While the pathology of the lacerated cervix uteri as taught by Emmett was quickly adopted as was the operation in this country, it was amazing how long a time it took the surgeons of Europe to accept this valuable contribution to pathology and surgery.

I did a trachelorrhaphy, according to Emmett's method, in 1878, and yet, while pursuing my studies abroad during the years of 1879-1880, I found Martin of Berlin doing the Schroeder cervical amputation for lacerated cervix, and in London I saw a large ward full of women, all being treated for the same trouble, termed ulceration and degeneration of the cervix, by the application of potassium hydroxid.

The general surgeons of the time of Sims, Emmett and Thomas, many of whose names are now looked on as beacon lights of the profession, knew nothing, comparatively, of gynecologic surgery. Engrossed in their own absorbing and developmental work, they looked at first with amused curiosity at the achievements of the gynecologist.

The general surgeons of that day rarely undertook intra-abdominal work, and when they did it was usually in cases of far advanced ovarian cystomas. While otherwise skilful operators, they often presented sorry spectacles of surgical impotence in operations involving the abdominal cavity. They exemplified unpreparedness, and while more dramatic, were less seriously accurate than their brothers of today.

Those of us who had the good fortune to be under the tutelage of some of those really great men can appreciate the truth of this observation. Think of the clinic of the late James R. Wood being used to demonstrate an abdominal section! He was familiarly and affectionately known as "Jimmy" Wood, and his clinic was termed "the matinee." His methods were the epitome of those of the great surgeons of that day. Rapidity and accuracy we admit were there, but above all was the spirit of dash and theatrical display that seemed to form a necessary part of the equipment of the great surgeon.

The gynecologist took himself more seriously, as his manifest destiny demanded, as he was the instrument being prepared for the accomplishment of the great surgical victories over the pathology of the pelvis and abdomen. Such a destiny could be achieved only by the serious-minded and prayerful. Also the plastic work of the vagina and cervix, the repairing of vesical and rectal fistulas, shortening of the round ligament, and other work approaching in delicacy the surgery of the eye offered no opportunity for theatricals.

From the pathology of the perineum, vagina and uterus it would seem but a step, to be quickly taken, to that of the fallopian tubes and ovaries, but owing to the dangers attending the invasion of the peritoneal cavity, this advance was not possible in any practical way until the principle of asepticism became known. Tait then boldly entered this new field with its immense possibilities, this previously unexplored region, whose gonococcus-infected tubes and ovaries were destroying the health, happiness and lives of untold numbers of women.

The younger generation in the profession, who have grown up in the atmosphere of modern pathology, can with difficulty realize the value of the boon to womankind that followed the discovery of the etiology of the pus tube.

Old textbooks on gynecology, written from thirty-five to forty years ago, treat voluminously of pelvic cellulitis, but not at all of pyosalpinx. The treatment was practically by the use of the hot vaginal douche. It is well occasionally to take a retrospective view that we may better appreciate the advantages of the present.

Ectopic pregnancy, also, was not well understood until after the advent of aseptic surgery. Pelvic hematocele was discussed at length in the same textbooks, and extra-uterine pregnancy was passed over with little more than mention of its rarity. Tait's brilliant work elucidated this subject. As early as 1876 he advised operation in such cases.

The modern aggressive surgery of the vermiform appendix began soon after the latter date, and here is also seen the influence of Tait and his followers, many of the latter, like the late lamented Joseph Price, carrying on the work with great energy in this country.

While Willard Parker of New York advocated and practiced the drainage of appendical abscesses as early as 1867, and reported a number of successful cases, and while many others were working along the same lines, especially in this country, it is again largely to Tait's wonderful pathologic insight, surgical skill and incisive boldness that we must credit much of the present successful operation of appendectomy It was in 1881 that he uttered the startling dictum of abdominal section for all cases of peritonitis from whatever cause occurring

This seemed radical, a far cry from the heroic opium treatment of Alonzo Clark and his followers, which was in full swing as late as 1875, but the light was just commencing to be turned on the pathology of this time-obscured *terra incognita* — the peritoneal cavity — and the commanding personality of a Tait was necessary to push home the new truths in a clear and forceful manner

As regards extra-uterine pregnancy, Strahan,[1] writing in 1889, said that Lawson Tait had had more experience of such cases than any man living and more than any man who ever lived Tait had then reported seventy-six cases, and had published a brochure[2] which embraces practically the views which are held on the subject at the present time Following the lead of these pioneers in gynecology and abdominal surgery, we find the names of many surgeons of brilliant attainments whose wonderful skill in diagnosis and technic are marvels of scientific acumen But the old pathfinders are gone, it is hoped to their much merited reward Many of their immediate followers who pushed the work initiated by these early discoveries to a successful fruition have also passed to the other side, but their work has resulted in such a standardization of the original fundamental principles pertaining to pelvic and abdominal pathology and surgical technic that these once seemingly impossible and unapproachable problems are now open to successful solution, by the skilful and conscientious surgeon And right here lies the danger to the public Skilful surgeons may not all be conscientious, conscientious surgeons may not all be skilful

DEVELOPMENT OF THE SPECIALIST

The present day free dissemination of knowledge by innumerable, lavishly illustrated textbooks results in the ruination of many good embryo internists in fashioning mediocre surgeons The lure of the knife is an *ignis fatuus* to many would-be surgeons It all looks too easy and simple, on paper Self-styled surgeons have been made too quickly in this country, and when time and experience have turned out a few good ones from this number, it has been at a stupendous cost of health and life to the public

Much good surgical timber is spoiled by the spreading out of endeavor over too wide a territory, when concentration over a much smaller area would mean success Preeminence has rarely been achieved by the former process, and it will ever be thus until those evolutionary processes of Nature produce the superman With the younger generation of surgeons it would seem as though some of them believed the era of the superman had arrived The pendulum is certainly swinging in the direction of all varieties of surgery for the general surgeon, and this will no doubt go on until the spreading out process will become so thin a surgical veneer as to determine the reverse swing of the pendulum

Will the specialist, then, come into his own by a sort of process of vicious circle action, engendered by the rapacity of the octopus, or is this simply an evolutionary process of Nature, who, in her wisdom, is working out a higher and more dignified and more impregnable position for the specialist? We may be sure that, at this period of medical history, with its continuously higher educational requirements, the law of the survival of the fittest will determine the destiny of all concerned in this contest

The influence of the American College of Surgeons will soon be felt in this direction in its efforts at the standardization of surgery and surgeons This field could be possibly still farther broadened, and the beneficent usefulness of the College enhanced; by extending such standardization to the surgical specialties It would seem that the power of arbitration so exercised would fill a long felt want in the elimination of those with little or no qualifications for the work in which they propose to specialize The demand for the best surgery is soon to be made by both the physician and the people, as they are awakening to the fact that the performance of a great multiplicity of operations of all kinds by a surgeon does not necessarily constitute him a skilful operator or a person of sound judgment

To make the specialist of the future, many of the short cuts now taken so easily toward the goal will be closed, and only that road — the one containing all the "jumps" — which leads to the greatest proficiency will be left open The future surgical specialist will not be a person of narrow medical education, professing or knowing nothing outside of his chosen field He will be a doctor of broad medical and surgical knowledge, of which his chosen specialty will be as the keystone of an arch, placed last, holding all and held by all

The prospective specialist, after receiving his medical degree, should be required to take a hospital course in internal medicine, in which he must become proficient, and especially so in differential diagnosis This will be his most valuable preparation for future like work, although it is now usually looked on as drudgery, to be avoided if possible, by the candidate for the hoped-for surgical distinction It is here he will learn those points of diagnosis which will save him from making many operative blunders, such, for instance, as taking out appendixes because of pain caused by a spastic cecum, stone or "gravel" in the right ureter, or by pneumonia — mistakes made too frequently at the present day He will then be prepared to take the hospital course in surgery, which should be general surgery, in the broadest sense of the term, as in my opinion it will be only the operator who has been well grounded in all of the principles and practices of general surgery who should be allowed to attempt a surgical specialty of any kind The latter should be looked on as a sort of postgraduate professional accomplishment, to be attained by merit, as a soldier wins his spurs After the course in general surgery he will be prepared to begin the serious study of his chosen specialty This should be under the direction of, and while acting as the assistant to, a surgeon practicing such specialty Such a term, consisting largely of practical assistance in operations, should extend over at least one year

A specialist commencing his life work after such preparation would command respect, and the lives of the public would not be endangered, as at present, by the ignorant and venal self-seeker

SUMMARY

I believe that the gynecologist and abdominal surgeon, as a specialist, has seen and passed the zenith of his activity under present conditions, that the future promises a still greater position than that enjoyed in the past but that it must be attained by means of a broader education and through the medium of general surgery of the highest order and broadest understanding I believe that the general surgeon of today is doing the major part of the abdominal and pelvic work because he is a better general surgeon than the gynecologist It is this broad understanding of surgical problems in general that begets confidence and confidence begets patients, and patients beget patients!

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[1] Strahan Diagnosis and Treatment of Extra Uterine Pregnancy

[2] Tait Scheme of Ectopic Gestation in Tubo Ovarian Tract, Lancet London, Sept 1 1888

The surgical millenium has not yet arrived but when it does the lion and the lamb will be seen lying down together side by side and not the one in the relation of nutritive pabulum to the digestive processes of the other

700 Shorb Building

REPORT OF STUDIES CONCERNING ACUTE LOBAR PNEUMONIA*

RUFUS COLE M D
NEW YORK

Four years ago, before this section, I discussed the question of the treatment of pneumonia by means of specific serum and gave the results of the treatment of a few cases by this method (During the period which has elapsed since then, the study of this form of treatment has been continued further experience has been obtained and certain new facts elicited, and today I desire to report the progress that has been made and to discuss certain practical questions relating to this form of therapy) At that time the type of pneumococci causing the infection had been determined in only seventy-nine cases We have now determined the type of infecting organism in over 500 cases in the Hospital of the Rockefeller Institute alone, and the method of determination of type is now being done as a routine procedure in a large number of hospitals and by several state and city boards of health

Judging from our own experience, about one third of the cases of pneumonia are due to infection with Type I pneumococci, one third to Type II pneumococci, 10 to 15 per cent to Type III pneumococci, and the remainder are due to infection with pneumococci belonging in the IV group In small series of cases the relative numbers of cases due to the different types will, of course, vary, and they may vary somewhat in different cities and in different years Our own figures from year to year, however, have been fairly consistent, and the results obtained by others have not varied widely from those stated The observations which have now been made concerning mortality indicate that the cases due to Type I and Type II are of average severity, the mortality being from 25 to 30 per cent , those due to Type III are severe, one half or more of the patients dying, while the cases due to organisms of Group IV are milder and the mortality is usually not more than 10 to 15 per cent

These observations in regard to severity of the cases due to the different types of infection have proved of great value in prognosis When the knowledge thus gained is combined with the knowledge obtained by blood culture, and by testing the urine for precipitable substance, we have a great deal of information regarding the probable outcome in the individual case In the cases due to the more serious types of infection, a high grade of blood infection as shown by the number of colonies per cubic centimeter in the blood plates is of very bad omen A heavy precipitin reaction in the urine also indicates a probable bad outcome, as Dochez and Avery have shown These signs may already be present when the patient s condition is relatively good as indicated by ordinary clinical observations and tests These facts have been of considerable importance in the past and will undoubtedly be of still greater value in the future in judging of the efficacy of therapeutic procedures

At the time my previous paper on serum therapy was read, only a small number of cases due to Type II infection had been treated with serum, and no evidence could be presented which was of much importance in indicating its value Further studies have not shown that this serum as now prepared and applied is of great value in the treatment of these cases In the cases so far treated, no constant technic has been applied, as we have been earnestly searching for modifications of the method which would increase the value of the serum Judging from the results in the individual cases so far treated however, no definite marked modification in the course of the disease or in the mortality in this class of cases has been obtained Nor has it been possible so far to modify the method of immunization in horses so as to obtain a more active serum

As regards the serum treatment of cases due to Type I infection, however, further observations have confirmed the results obtained in the previous small series of cases, and the evidence now seems quite convincing that immune serum, rightly employed, in this form of infection is of distinct value, and by its use the mortality in patients infected with this type of pneumococci may be materially reduced Up to the present 105 cases of this type have been treated with serum in the Hospital of the Rockefeller Institute alone, and of these, ninety-seven patients have recovered and eight have died Of the eight fatal cases, three were treated only a few hours before death, late in the disease, one patient died on the sixteenth day of pulmonary embolism, one died on the fifty-fourth day with a general streptococcus infection, following empyema, one at necropsy was found to have tuberculosis involving both lungs, with only a small area of pneumonia involving a part of one lobe This leaves but two cases in which treatment may be said to have been at all adequately carried out, or in which any form of specific treatment could be expected to be of any value and these were treated late in the disease One of these two patients died on the sixth day, after treatment on the fifth and sixth days, and one lived until the twelve day, treatment having been undertaken only on the seventh day This patient had an extremely severe infection at the time of admission, blood cultures showing 300 colonies per cubic centimeter In spite of this severe septicemia, the blood culture became negative, but the involvement was extensive, and in spite of treatment with massive doses of serum, he died on the twelfth day Of thirty-five patients treated during the past winter only two have died

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* From the Hospital of the Rockefeller Institute for Medical Research

* Read before the Section on Practice of Medicine at the Sixty Eighth Annual Session of the American Medical Association New York June 1917

The results of serum treatment in this series of cases have therefore been extremely good, and in many of the cases the clinical changes following the administration of the serum have been so definite and striking that it seems there can be little doubt of the effectiveness of serum treatment in this type of infection. Similar results have also been obtained in other hospitals where the treatment could be carried out with full attention to details. Craig and Nichols have also tested the method in a series of cases among the troops on the Texas border and among the Type I cases so treated the mortality was but 5 per cent.

These results, and the fact that certain public health laboratories and also certain commercial houses are now preparing the serum, so that there will soon be a considerable supply available, makes it evident that during the coming winter this form of therapy will be extensively employed in civil practice, and I hope in the Army as well. The latter is of much importance. During our Civil War twice as many deaths resulted from disease as from the injuries of battle. One half of all the deaths from disease were due to typhoid, dysentery and pneumonia. One of these diseases, typhoid, has now been practically eliminated, and it is not likely that dysentery will cause great damage in the present war. On the other hand, in the camps in which raw recruits are collected, especially in the winter, pneumonia is bound to be very prevalent. It is to be hoped that by systematic and thorough treatment of the Type I cases with serum, the mortality from this disease also may be materially reduced.

For these reasons I propose to discuss briefly certain practical points connected with this form of treatment.

Questions which are immediately raised are whether it is justifiable to treat all cases of pneumonia with serum, whether its use should be confined to cases known to be due to Type I infection, or whether it is justifiable to use a polyvalent serum in all cases of pneumonia. The objection to the use of Type I serum in all cases of pneumonia is that in at least two thirds of the cases we know that it will do no good whatever. The immunologic reactions of this infectious agent are absolutely specific. If we had no means of determining the type of infection in the individual case, we might discuss whether we were justified in subjecting two thirds of all pneumonia patients to the possibility of severe serum reactions without any possible benefit to themselves, in order to obtain good results in the other one third. Fortunately, we now have means for determining the type of infection in the individual case, and the fact that the method is somewhat complicated, though not extremely so, in my opinion does not justify the indiscriminate use of serum. It is impossible to say at present to what extent the serum reactions in the cases of other types might interfere with the chances of recovery, if at all, nevertheless they are unpleasant when they occur, and may cause some anxiety to the physician, especially if he be uncertain whether in the case being treated the serum can be of any value or not. There seems to be no reason, therefore, to change the opinion which we have previously held, that determination of the type of infecting agent should be an essential prelude to this form of therapy.

The same statements apply to the use of so-called polyvalent serums. The only other type of pneumococcus infection in which, with our present knowledge, antipneumococcus serum can be of value is infection due to Type II pneumococci. The best serum we have been able to produce against this type of infection is of considerable lower potency than the Type I serum. We have tested all the other serums manufactured in this country and know that none of them have a higher titer than ours. Our results with treatment with this type of serum are still inconclusive. We, therefore, believe that at present the use of a polyvalent Type I and Type II serum is unjustified. The indiscriminate use of serums in cases in which the type of infection is undetermined will only lead to inefficient and improper use of the serum in the cases due to Type I infection, in which, if the treatment is carried out intensively and with confidence, beneficial results may be expected.

It has been suggested that to avoid the delay incident to the determination of type, a single dose of Type I serum should be given in every case. During the time elapsing before the administration of the second dose, the type of infecting agent may be determined, and if it be not Type I, no further serum need be given. Whether by this method the disadvantages incidental to serum reactions will outweigh the advantages of earlier administration of serum, we have at present no means of knowing. The decision in the individual case will have to depend on such circumstances as the day of the disease on which the patient is first seen, the severity of the infection, etc.

In all forms of serum therapy the earlier the serum is administered the greater the effectiveness. Experience has shown this to be of much importance in treatment with diphtheria antitoxic serum, and the time of administration is undoubtedly still more important with antibacterial serums, such as antipneumococcus serum. Pneumonia is the easiest of the acute infectious diseases to diagnose, the onset is usually violent, and except in the case of the extremely poor, a physician usually sees the patient early in the disease. With general recognition of the importance of early diagnosis of the disease and determination of the type of infection, in most cases knowledge of the nature of the infectious agent can be obtained within twenty-four, or at the most forty-eight hours after onset, and serum administration can be commenced at once. If this form of serum therapy is going to prove of great practical value, it is important for all laboratories to be prepared to furnish prompt and accurate diagnoses of type. This is coming to be recognized, and a number of public health laboratories are now prepared to carry out the required tests. In outlying country districts the matter is more difficult, but in any place that examinations of throat cultures for diphtheria bacilli can be made, the tests for determination of type of pneumococci can be performed.

After it has been determined that the case is one of pneumonia due to Type I pneumococci, the administration of serum should at once be made. It is not fair to the treatment or to the patient to wait to see whether the case is going to be a severe one or not. All experienced physicians know that nothing is more difficult than prognosis in pneumonia. With the laboratory aids we have mentioned, it is not infrequently possible to say, even in the absence of severe symptoms, that a case will progress badly, but it is next to impossible to say with any authority, early in the disease, that a patient will recover. All patients with Type I infection should, therefore, be treated with serum, and treated as soon as the diagnosis is made.

In administering serum, however, it is important to know that the serum is of proper strength and potency

Last winter in testing antipneumococcus serums prepared by commercial houses I found that certain of them had little potency against pneumococci of Type I, some of them had absolutely no protective power against any type of pneumococcus with which I am acquainted. It has been somewhat difficult to determine a standard of potency for this form of serum, though not nearly so difficult as for antimeningitis or antidysentery serum for instance. The Hygienic Laboratory of the United States Public Health Service has now taken up the matter and within a short time it is expected that a standard will be fixed. An effective serum will be one which is equal in potency to the standard serum 0.2 c.c. of which protects a 20 gram mouse against 0.1 c.c. of a culture, of which 0.000001 c.c. alone will kill. As soon as this standard is established, those administering this form of serum should employ only such serums as are guaranteed by the manufacturer to conform to the required tests.

This serum should be given intravenously, preferably diluted once with freshly prepared sterile salt solution though this dilution is not absolutely necessary, provided the serum be injected slowly enough. The dosage is at present empirical. For reasons into which I cannot enter here, however, we believe that the dose for an adult should be at least 75 to 100 c.c., and if necessary this should be repeated every six or eight hours until a favorable result is obtained. In most cases two or three doses are sufficient. The average amount employed in our cases during the past winter, if we except the one fatal case which was treated over a period of five days, has been 250 c.c. Usually within an hour or two following the injection, there occurs a slight elevation of temperature succeeded by a marked fall. Frequently, however, the temperature does not remain low, but after a period of from eight to twenty-four hours it again begins to rise. We feel that it is extremely important to watch the patient after the administration of serum, taking the temperature every two hours, and whenever this rise occurs the administration of serum should be repeated at once. If no change occurs following the first dose, the reinjection should always be made within six to eight hours. Experimental evidence as well as clinical observations indicate that we should persevere, even if no reaction is obtained after several doses.

The object to be striven for in the administration of the serum is to produce in the patient's blood a concentration of antibodies such as that which occurs during natural recovery from the disease, for we believe that it is largely on this factor that recovery depends. If to obtain this result required merely the addition of a definite amount of the serum to the patient's blood, just as we might make a dilution of the serum in normal blood in the test-tube, there would be little difficulty, for the serum is of high potency and it is probably only necessary to produce a slight concentration of immune bodies in the patient's blood in order to obtain favorable results. However, experiments have shown that not only do the bacteria circulating in the blood fix antibodies and so render them ineffective, but in the infected patients the blood contains soluble antigenic substances which fix antibodies just as do the bacteria themselves. In the severely infected patients these soluble substances may be present in large amounts and it is only after these substances are all saturated that an effective concentration of immune bodies in the blood can be obtained. This fact explains why, in the severely infected or late cases, it is necessary to inject so much more serum than it is when the patients are seen early or are less severely infected.

In administering large amounts of foreign serum, as it is necessary to do in this form of therapy, the patients may exhibit certain symptoms which are due entirely to the parenteral injection of the foreign protein, and have no relation at all to the content of the serum in specific antibodies. The physician should be familiar with these reactions, in order that they may be avoided so far as possible and that appropriate treatment may be given, and finally that he may not be unduly alarmed and avoid employing a measure which is of such distinct advantage to the patient. These so-called serum reactions are of several kinds. First, in patients who have previously received horse serum, or even occasionally in cases in which no history of the previous administration of horse serum can be obtained, there may occur, almost immediately following the injection, suffusion of the face, restlessness, increased heart rate, difficulty in breathing, urticaria, and rarely collapse. These symptoms may occur, however, after the administration of small doses of serum such as are employed in the treatment of diphtheria, as well as following large doses of serum such as are required in pneumonia. The reaction is undoubtedly analogous to, and probably in principle identical with, the so-called anaphylactic shock seen in animals following a second injection of foreign protein. That it is not of frequent occurrence and is rarely of serious import all those who have had much experience in giving diphtheria antitoxin will bear witness. Moreover, it can be guarded against and probably avoided in all cases. In the first place, we now have means of determining before administration of serum or protein whether or not a patient is sensitive. This is done by injecting into the patient's skin, not subcutaneously, a small amount of the foreign substance. If the patient is sensitive, within an hour there will occur a characteristic local edema and erythema, which is entirely lacking at the site of injection in patients who are not sensitive. It is, therefore, important that this test should be made before giving horse serum, and this applies to all forms of serum therapy. Second, it has been shown by Besredka and others that even susceptible and highly sensitized animals may be completely desensitized so that they may receive huge doses of the serum to which they are sensitive, if the injection be made gradually, beginning with an extremely minute dose, and following this with doses of gradually increasing size. It has been shown that even administering the serum with extreme slowness may be sufficient to prevent anaphylactic shock in animals. It has been our plan, therefore, to inject subcutaneously into every patient suffering from pneumonia, on admission to the hospital, a small dose, 0.5 to 1 c.c., of horse serum. This is done, even when the skin reaction has not shown that he is sensitive. By this measure, if slight grades of sensitization be present, several hours will have elapsed by the time the determination of type is made, and in the meantime the patient will have been desensitized. Then in administering the serum, it is injected slowly at first. A good rule is to allow at least fifteen minutes for the administration of the first 15 c.c. If no reaction has occurred, the remainder may be injected more rapidly, and subsequent doses may be injected without this delay. If the skin test has shown the patient to be sensitive, additional measures to desensitize the patient should be taken in the way of repeated injections, beginning with small doses and gradually increasing them By these means Alexander, at the Peter Bent Brigham Hospital, has been able to treat safely and successfully pneumonia patients who have been known to be highly sensitive to horse serum It should be noted that care should be taken in the serum treatment of patients suffering from asthma, hay-fever or other forms of protein sensitiveness, for it is known that such patients are especially liable to be sensitive to horse serum as well If the physician has knowledge of all these facts, and takes adequate precautions, severe anaphylactic shock should not occur In any case, it should be remembered that severe shock occurs extremely rarely Its danger should not be overemphasized, and above all, serum treatment in cases in which it is known to be effective should not be omitted because of this possible danger

The second form of serum reaction is more difficult to guard against This possibly has nothing to do with anaphylaxis or previous sensitization, and may occur with repeated injections The symptoms, however, are like those seen in anaphylactic shock, consisting of restlessness, tachycardia, suffusion of the face, sweating and occasionally vomiting They may appear during the administration of serum, or may be delayed for an hour or longer High elevation of temperature, with abrupt fall, may be a part of this nonspecific serum intoxication This reaction is identical with that sometimes seen after salvarsan injections, which reactions are thought to be due to improperly distilled water It is the same kind of reaction which is seen after large injections of vaccines, which reactions have been claimed by some to have therapeutic effects However, we do not believe that the beneficial effects of such reactions have been demonstrated So far as the present form of therapy is concerned, we believe that the occasional occurrence of such reactions is a distinct drawback to the method, and we believe that such reactions should be prevented so far as possible At present they cannot be entirely avoided, an occasional patient will show such a reaction, just as they do with salvarsan However, we can undoubtedly lessen the frequency of their occurrence and their severity Certain lots of serum are more prone to produce such reactions Those lots of serum should not be employed Then the injections should be given slowly and the serum should be heated to body temperature before injection If the patient shows signs of distress during the treatment, the injection should be stopped, to be continued an hour or two later If such reactions occur, the injection of 0 5 c c of epinephrin solution, or 0 01 gram of atropin will usually give relief While these reactions, when they occur, may appear alarming, so far as we have been able to see they have in no way affected the course of the disease or interfered with the efficiency of the serum

Finally, following serum treatment, patients may show a complex of symptoms which has been described as serum sickness These symptoms consist of elevation of temperature, skin rashes, glandular enlargement, edema of the skin, and joint pains Mild symptoms, especially the skin rashes, may occur within a day or two after the serum injections (so-called accelerated reactions) The entire group of symptoms most frequently occurs, however, seven to fourteen days following the administration of the serum The attack may be repeated one or more times, or may be very irregular in its course Mild symptoms occur in about half the treated cases, severe attacks only rarely While this so-called serum disease is at times distressing, it is, so far as I know, never serious, and is always recovered from, leaving no sequelae The urticaria is the most distressing symptom This may be relieved temporarily by the injection of small doses of epinephrin, and the discomfort may be lessened by phenol washes It should always be remembered that during the entire period of convalescence the physician should always be watchful for complications It is a very unsafe rule to ascribe all unusual symptoms during this period to serum sickness Serum sickness may cause high elevation of temperature, to 103 F or over, for instance, but care must always be taken to avoid overlooking other complications which may be responsible

I have laid stress on these various symptoms following the administration of serum, because every physician carrying out this form of treatment should be familiar with them, and because the statement has been made that the danger of anaphylaxis is so great and the discomfort of the serum reactions so marked that serum therapy in pneumonia should not be employed This point of view I believe to be entirely wrong If in such a serious disease as pneumonia we have a measure which may save life, we have no right to neglect it because of the possibility of anaphylaxis, which can be avoided, or of serum reactions, which are at the most only distressing The dangers associated with the administration of serum are probably no greater and probably much less than the danger associated with the administration of an anesthetic We have now administered large doses of serum in 150 or more cases without seeing any unfavorable results

We now have evidence that the treatment of cases of pneumonia due to Type I pneumococci with immune serum is of value in lessening the mortality from this disease To produce the desired results it is extremely important that the disease be diagnosed early, that the type of infection be promptly determined, and that there occur no delay in administering the serum The serum should be a specific one, of known high titer It should be administered intravenously in large amounts Finally, care should be taken to avoid anaphylactic shock, and the physician should be familiar with the different kinds of serum reactions, and, while he should try in every way to avoid them, he should in no case neglect the administration of serum because such reactions may occasionally occur

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ABSTRACT OF DISCUSSION

Dr Lawrence Litchfield, Pittsburgh During 1916 there were reported in Pittsburgh 1,394 cases of lobar pneumonia, while 1,296 deaths were certified to lobar pneumonia The physicians of western Pennsylvania are learning the importance of differentiating their pneumonias according to the method of the Rockefeller Institute We believe it is just as necessary to differentiate one type from another as it is to differentiate pneumonia from typhoid fever It has been repeatedly shown that one type of pneumonia confers no immunity as regards other types A patient convalescing from Group IV pneumonia, for example, may contract a Group I infection from a patient in a neighboring bed Therefore, it is essential not only to differentiate the types of pneumonia, but to isolate them strictly from each other, as well as from other hospital patients

Through the courtesy of Drs Ernest W Willetts, Oskar Klotz, S L Haythorn, C C Hartman, and A B Walgren, I am able to report here practically all the cases differentiated in western Pennsylvania up to the present time. The results are shown in the table:

Type	134 Cases Number	Per Cent	Deaths	Mortality Per Cent
I	55	41	26	47
II	39	29	16	41
III	7	5	4	57
IV	33	25	16	4[illegible]

Another striking evidence of the virulence of pneumonia in our district is the fact that out of these 134 cases there have been fourteen cases of pneumococcic meningitis diagnosed by lumbar puncture: of Type I, twelve cases; of Type II and Group IV, one case each. Some of these meningitis patients were treated by the repeated injection of the undiluted Rockefeller serum into the lumbar canal, the amount injected being the same as the amount of cerebrospinal fluid withdrawn. Fluid withdrawn after these treatments showed clumping and disintegration of the pneumococci from the effect of the serum. The symptoms and progress of the meningitis were modified in a noteworthy manner, but as yet we have had no recoveries.

Of the Type I cases of lobar pneumonia, twelve patients were treated with the Rockefeller serum, with five deaths. All were late cases and the patients were desperately ill, and in spite of the high mortality a study of the cases has made me very enthusiastic as regards this treatment. In two cases we had somewhat alarming symptoms immediately following the injection of the serum—dyspnea, tachycardia and cyanosis—but both patients recovered after the free use of digitalis, epinephrin and atropin intravenously.

Sixteen cases of pneumonia, Types I and II, in which urine was tested for specific precipitins without concentration gave results as follows:

Negative	Positive Type I	Type II
9	4	3

Six cases of Group IV tested against antipneumococcic serum Types I, II and III were all negative.

One case, Type I, marked precipitate before boiling, negative after.

One case, marked precipitate I and II at dilutions of 1 to 10, 1 to 20 and 1 to 40, and with Type II only at 1 to 80.

Dr. David Bovaird, New York: [Dr. Bovaird gave on a chart results obtained at the Presbyterian Hospital.] There is a most remarkable variability in the mortality of the different groups of this disease in different years, a variability for which we have at present no explanation. In Group IV in 1914, the mortality was 5 per cent., in 1916 it was 25 per cent., and so on. It is also clear that in Group I the mortality is more nearly constant at about 25 per cent. It is therefore, important to be careful in comparing mortality statistics. Thirty-three cases belong to Group I; we have treated twenty-seven patients with serum and of these five died, a mortality of 18.5 per cent. In the entire chart there are 211 cases with a mortality of 30 per cent. in the whole group. Two of the five serum-treated patients died of empyema subsequent to their lobar pneumonia and did not, in a fair sense, die of pneumonia itself. A third died of systemic staphylococcus infection, the origin of which we cannot accurately determine, but it was a sequel of the pneumonia and not a part of the pneumonia itself. That case should be excluded in estimating the mortality of the group. In short, but two of the five deaths are justly to be regarded as serum failures, a mortality of 7.5 per cent.

Apart from the question of mortality, it is perfectly clear that there are some definite and immediate effects of the injection of the serum. In the first place, the reduction of the temperature comes within twenty-four to forty-eight hours. Coincident with the drop of temperature there is a marked improvement in the patient. In many cases that change is analogous to that which accompanies the real crisis of the disease. The duration of the disease seems to be shortened. The total duration of the cases in the serum-treated patients is less than that of the others. In patients with positive blood cultures, the bacteria disappear from the blood. In some patients the early reactions seem to be attended with danger. We have had no fatality which we could attribute to them. The late serum reaction is very uncomfortable to the patient and is to be reckoned with in treatment. The possibilities of these reactions demand that the serum be used only in the cases in which it is indicated. In the serum we have a remedy that is not miraculous but which will produce definite therapeutic effects and which has already reduced the mortality of the disease to some extent at least, all of which leads us to believe that the men who have brought forth this remedy should pursue these same lines and be able to yield us still more substantial results.

Dr. S. J. Meltzer, New York: I wish to cite here an encouraging result which we obtained with the serum treatment of experimental pneumonia in dogs, produced by the method of intrabronchial insufflation. Dr. Wollstein is now in possession of a very virulent pneumococcus culture of Type I by means of which we succeeded in producing typical pneumonia with a fatal termination. Only about a week ago we insufflated two dogs of the same size with similar doses of the culture. The nontreated animal died in less than forty-eight hours under severe clinical symptoms; the necropsy showed the presence of a severe pneumonic lesion. The other dog received four serum injections administered by Dr. Chickering. That animal is still alive and apparently well. Of course no definite conclusion can be drawn from a single experiment, but the contrast was so striking that the result may be designated as encouraging.

Dr. H. A. Christian, Boston: We treated with serum during the last winter at the Brigham Hospital fourteen patients with Group I pneumonia, and of the fourteen two died; one died on the sixth day of convalescence from pulmonary embolism resulting from thrombosis of a vein in the leg, the other patient died in the course of the pneumonia. The patient was an alcoholic in delirium. The other patients all got well. Reaction was prompt and striking. We have treated three or four patients who were sensitive and had asthma during treatment. These were desensitized and notwithstanding the asthma all of them were treated with serum with success. It is a difficult thing to do, and those who have not seen a patient desensitized will have no idea of the seriousness of the condition. That is why care should be used in introducing the serum, giving it slowly and having the patient under careful observation during its administration. In one of these cases the skin test with horse serum on the skin of the forearm was negative. The other cases reacted and we were guided accordingly to great caution. In the one case the skin test showed the patient not sensitive to this test and yet the patient had asthma. That is a good reason for the slow introduction of the serum in all cases.

Dr. Rufus Cole, New York: To establish by statistical evidence the value of any therapeutic agent in lowering mortality requires much time and the accumulation of a very large number of cases. We all remember the difficulties which were encountered in deciding from statistical evidence the value of diphtheria antitoxin. We all recognize that judgment from statistical evidence is especially difficult in pneumonia. The evidence of other kinds, however, has been so striking and the mortality statistics, so far as obtained, so good that we cannot but feel hopeful that the treatment of this type of infection by immune serum is of distinct value. However good other kinds of evidence are, the final test must be as to whether patients with pneumonia are cured or not. The results of the experiment on the dog mentioned by Dr. Meltzer are striking, but of course the evidence from one experiment should not weigh heavily in our judgment. Such experiments on dogs will undoubtedly be of interest and value, because conditions in the dog more nearly resemble those seen in lobar pneumonia in man than do those which are present following infection in smaller animals. In neither case, however, are the conditions identical with acute lobar pneumonia in man, and the final test of value must come from the observation of patients.

As to variations in the relative number of cases due to the different types of organism occurring in different places and at different times, this is to be expected It will only be after a very large number of cases are observed that we can state with any degree of accuracy the percentage of cases due to the different types of organism Our results from year to year, however, have been fairly consistent and the results obtained in other general hospitals have agreed fairly closely with ours

The number of cases of meningitis observed by Dr Litchfield is extraordinary I shall be interested to learn whether in any of these cases serum had been administered before the onset of the meningitis The experiments of Dr Wadsworth and those of Dr Bull show that animals partially immunized or inefficiently treated tend to develop local focal, rather than general, infections, and suggest that in the very serious cases which are not efficiently treated, such focal complications as empyema or meningitis may occur This does not mean that empyema or other focal lesions occur more frequently in serum treated patients, but that patients who would otherwise die may be saved, to suffer from a focal lesion To determine this, however, will require many more observations than we have made up to the present In collecting statistics regarding the outcome of treated and untreated patients, I think we should always include all the patients dying, even though they die from complications not necessarily due to pneumococcus infections, and this I have done After all, such complications would not occur and the patients would not die had they not suffered from pneumonia

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DILATED DUODENUM

WITH ESPECIAL REFERENCE TO CHRONIC DUODENAL OBSTRUCTION IN VISCEROPTOSIS *

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The terminal portion of the duodenum passes behind the root of the mesentery and lies on the vertebral column and aorta In the human being, because of his erect posture, this transverse part of the duodenum is more or less compressed by the mesentery and its contained superior mesenteric artery In 1899, Albrecht[1] pointed out that this segment of the duodenum has, under normal conditions, not a round contour but a distinctly flattened circumference Codman,[2] a few years ago, also emphasized this fact and presented casts of a number of duodenums showing definite evidence of compression

This normal constriction of the duodenum may readily be increased by slight anatomic variations, or by certain pathologic conditions, up to the point of complete occlusion of the intestines Albrecht not only demonstrated this normal constriction of the duodenum in the cadaver but showed that if a finger be introduced into the duodenum and at the same time gentle traction downward be made on the mesentery, the constriction becomes more distinct and very evident to the examining finger It is obvious that when this pressure of the mesentery reaches a degree great enough to give more resistance to the muscular efforts of the duodenum than the closed pylorus, the condition becomes of pathologic significance Albrecht, and afterward Connor,[3] showed on the cadaver that traction on the mesentery in the direction of the axis of the pelvis may produce obstruction in the duodenum which will be impervious to water under considerable pressure

In many cases of visceroptosis conditions arise within the abdomen that are an exact counterpart of the experimentally induced constriction of Albrecht With the small intestine lying altogether or chiefly in the pelvis, traction is made on the mesentery in just the direction needed to cause a more or less complete occlusion of the duodenum

Certain contributing factors play a part in producing mesenteric ileus The mesentery must not be too long, otherwise the small intestine is supported by the pelvic floor and no drag ensues Then again, the duodenum is rendered much more liable to serious compression if there is any unusual prominence (lordosis) of the lumbar vertebrae (Schnitzler[4]) This increased lordosis was very evident in Case 1 of our series A dilated cecum displaced in the pelvis was noted in five cases of chronic dilatation of the duodenum reported by Bloodgood[5] "The distended cecum in the pelvis, the short mesentery of the ileum near the cecum, the demonstrable pull on the mesentery, the dilated duodenum appeared to be the essential pathologic features" Jordan,[6] who gives an excellent roentgenographic description of duodenal dilatation, looks on the mesenteric drag and subsequent duodenojejunal kinking as one of the complications of ileac stasis "The last coils of the ileum are normally placed above the pelvis, if there be any marked delay in the passage of the ileal contents into the cecum, these last coils of the ileum become overloaded and fall into the pelvis In falling they drag on the mesentery," etc[7]

Our experience with chronic dilatation of the duodenum due to mesenteric obstruction embraces six cases In the first patient the condition was recognized only at necropsy, in two instances the duodenal dilatation was demonstrated at operation, and the diagnosis in three cases was confirmed by Roentgen-ray examination From the study of these patients we are certain that we have overlooked other instances of chronic mesenteric ileus and that, in general, the clinical manifestations of duodenojejunal kinking are frequently misinterpreted

REPORT OF CASES

CASE 1—*Clinical Summary Jaundice at onset of illness five years ago, followed by aching pain in upper right abdomen, became nervous, hypersensitive and overreligious, frequent nausea and vomiting past four months, obstinate constipation, progressive loss of weight and strength, lordosis and visceroptosis, no abdominal distention, acidosis, death, necropsy, dilated duodenum*

Miss M (5216), aged 20 years Date Oct 17, 1914 Complaint Vomiting, weakness and pain in upper right abdomen

History—Patient had occasional attacks of tonsillitis, no other acute infections, her general health was good In 1909 the patient had jaundice for two weeks with nausea but no pain She had a recurrence one month later with the same symptoms and duration Made a complete recovery but a few months later developed a pain in the upper right abdomen This continued but was never acute or severe described as an aching Became very nervous and overreligious In 1912 the patient discovered a lump in the right side of the abdomen (floating kidney?) and saw a surgeon who advised against operation Her nervousness and abdominal discomfort increased No history of any acute attacks of abdominal pain

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* Read before the Section on Practice of Medicine at the Sixty Eighth Annual Session of the American Medical Association, New York, June 1917

[1] Albrecht Virchows Arch f path Anat 156, 285

[2] Codman Boston Med and Surg Jour 1908 158, 503

[3] Connor Am Jour Med Sc, 1907 133, 345

[4] Schnitzler Wien klin Rundschau, 1895 9, 579, 593

[5] Bloodgood J C Dilatation of the Duodenum in Relation to Surgery of the Stomach and Colon, THE JOURNAL A M A, July 13, 1912, p 117

[6] Jordan Brit Med Jour 1912, 1, 1225

[7] Jordan's article is well illustrated with *roentgenograms* and tracings *in the case of* a woman with a hugely dilated duodenum He also describes a vivid fluoroscopic picture, *namely* "The duodenum was half as long again and more than double the width of a *normal* duodenum *For seven or eight minutes* the duodenum was observed undergoing vigorous writhing contractions in a vain endeavor to force its contents into the jejunum through the kink at the duodenojejunal junction After seven or eight minutes a very powerful contraction of the duodenum forced a large mass of bismuth emulsion through *suddenly* into the jejunum, and the bismuth forthwith began *to course* rapidly through the coils of the small intestine Fifteen hours after the bismuth meal the stomach and duodenum no longer contained any bismuth the greater part of it was found *to be* in the *lower coils* of the ileum in the pelvis The cecum also occupied the pelvis Twenty seven hours after the bismuth meal there was still *some bismuth* at the lower end of the ileum, and the most advanced portion had reached the sigmoid Thus the sojourn of the bismuth in the small intestine was more than three times the normal."

In June 1914 patient began to suffer with frequent nausea and vomiting The vomitus was always sour and contained a great deal of bile (Relation of pain and vomiting to meals not stated) No hematemesis Bowels have been obstinately constipated Progressive emaciation and weakness No diarrhea or stomatitis

Examination—Physical examination was negative except as follows Cheeks were flushed tongue red and bald, abdomen retracted lordosis to such an extent that lumbar spine does not rest on the bed both kidneys easily palpable moderate diffuse abdominal tenderness abdominal wall soft

Neurologic examination negative except as follows Patient appeared apathetic and depressed, knee jerks were not obtained

Roentgen-ray plates of chest were negative for active tuberculosis (The patient was too ill to undertake roentgenographic examination of gastro-intestinal tract)

Blood White blood corpuscles 6,900 Hemoglobin 70 per cent Polymorphonuclears 55 per cent Small mononuclears 35 per cent Large mononuclears and transitionals 8 per cent Eosinophils 2 per cent Negative for malaria Morphologically negative

Urine (catheterized) amber acid 1.020 albumin distinct trace, sugar 0 indican slightly increased acetone present diacetic acid present Microscopically negative

Gastric Analysis Ewald test breakfast removed in forty-five minutes 200 c.c. expressed Gross appearance greenish fluid finely divided bread particles no visible blood no excess of mucus no evidence of stasis Free hydrochloric acid 13 total acidity 24

Course—During the first week in hospital temperature ranged from 98.2 to 99.4 F., pulse 70 to 100 remaining six days temperature 98.2 to 101.1 pulse 116 to 134 Almost constant nausea frequent hiccups occasional vomiting Repeated stomach washings brought back greenish brown fluid On one occasion gastric lavage returned some castor oil given twenty hours previously Solution of dextrose and bicarbonate of soda by bowel retained Obstinate constipation but stools were secured daily by enema and purgatives Mind was perfectly clear No abdominal distention Marked prostration.

Oct. 30 1914 Patient died at 8 15 p m In the past forty-eight hours has not vomited but has regurgitated small amounts of slightly colored fluid on three or four occasions Yesterday she took and retained a little nourishment by mouth, and last night retained 8 ounces of magnesium citrate Bowels moved twice today Kidneys have been acting quite freely until today, when secretion became scanty Urine has continued to show large amounts of acetone and diacetic acid The abdomen has been uniformly retracted until today, when rather marked distention appeared The past three days the patient complained of being unable to see or hear well The cheeks have remained flushed and there has been no jaundice Several days ago the mouth became red and inflamed and today she has had difficulty in swallowing

The following opinions as to the nature of patient's illness were entertained by

(1) Family physician Chronic cholecystitis

(2) Consulting neurologist "If you can exclude gallbladder disease I think her emaciation and vomiting can be accounted for by hysteria"

(3) Consulting surgeon No obstruction, no surgical lesion some underlying toxemia possibly pellagra

(4) Medical attendant Visceroptosis persistent vomiting of undetermined origin, starvation, acidosis

Necropsy (Dr B C Willis)—This was performed two and one-half hours after death and was limited to the abdominal cavity The peritoneum was everywhere smooth and glistening The liver, gallbladder and ducts were normal The pelvis urinary bladder appendix, kidneys and suprarenal glands were normal The transverse colon and most of the small intestines were in the pelvis The former was deeply injected and somewhat distended with gas The small intestine was collapsed The lower portion of the ileum contained some fluid There were few small subserous hemorrhages on the walls of the jejunum Passing upward, the lumen of the small intestine became smaller and smaller as the duodenum was approached The duodenum just behind the mesentery of the small intestine was sharply kinked The cephalad portion of the duodenum was greatly dilated (diameter 3 to 4 inches) and filled with gas but its walls were not injected The stomach was moderately dilated and contained about a pint of dark fluid The pylorus was patent

Conclusion "The dilatation of the duodenum in this case may be explained by two marked anatomic changes First, the extreme lordosis and second the marked visceroptosis which caused the mesentery to partially occlude the last portion of the duodenum as it crossed the vertebral column"

CASE 2—*Clinical Summary Abdominal pain of five years' duration with suggestive ulcer syndrome visceroptosis pulmonary tuberculosis operation showed chronic mesenteric ileus with dilated duodenum*

Mrs R (6156) aged 37 years Date Nov 1, 1915 Complaint Abdominal pain

History—The past history has no special bearing on the present complaint Average weight 115 pounds Present weight 97½ pounds

The patient had vague digestive disturbance some years ago with vomiting and abdominal pain with subsequent recovery Had four attacks of acute abdominal pain the first one seven years ago last one two years ago Dates the onset of her present illness five years ago when she began to suffer with pain similar to toothache in the epigastrium It occurs every day and is more pronounced for a week or ten days preceding the menstrual periods The pain bears a definite relation to meals occurring three to four hours after eating and is always relieved by eating It is especially troublesome about bedtime The pain is located high in the epigastrium and radiates up into the chest and through to the back There is some flatulence but no vomiting Patient has frequent dull headache sleeps very poorly and is nervous

Examination—Patient is an undernourished sallow woman Has signs of pulmonary tuberculosis in both upper lobes more marked on the right The abdomen shows signs of counterirritation in epigastrium A general rigidity makes palpation unsatisfactory Has rather marked tenderness in the epigastrium and beneath the right costal border where a typical gallbladder block is elicited Blood urine and gastric analysis are normal The gastric contents contained much bile no stasis Clinical diagnosis lay between peptic ulcer and chronic cholecystitis

Operation (Dr A. M Willis)—The gallbladder and stomach were negative Appendix was slightly thickened The duodenum was greatly dilated down to a point where it passed behind the mesentery General enteroptosis Appendix was removed and an attempt made to free the obstruction about the duodenum by widening the slit in the mesentery

Seven months later patient had developed well-marked laryngeal tuberculosis but her abdominal symptoms were improved

CASE 3—*Clinical Summary Recurring spells of indigestion for fifteen years with regurgitation of food suggestive gallbladder syndrome pulmonary tuberculosis, no definite visceroptosis Roentgen-ray examination showed dilated duodenum with stasis*

Mr W (6284) aged 43 years Date Jan 4, 1916 Complaint Stomach trouble

History—Patient had typhoid twenty-five years ago Used whisky freely until two years ago There is no history of venereal disease Average weight, 150 pounds Present weight, 124 pounds

The present illness began fifteen years ago with recurring spells of indigestion, now becoming more frequent He has become extremely nervous and apprehensive There is no actual vomiting but the chief complaint is regurgitation of food twenty to thirty minutes after eating There is no difficulty in swallowing A good deal of sour stomach and flatulence There is a history of two short attacks of severe cramp colic in the past year requiring morphin In general, his indigestion is not characterized by pain He says he spits up his food because it induces fulness in the stomach with pressure about the heart which makes him very nervous Bowels are always constipated Has no jaundice

Examination—Patient is sallow and poorly nourished The chest shows signs of fairly extensive tuberculosis in the right upper and middle lobe with some involvement at the left apex The abdomen is entirely negative except for rather pronounced general rigidity There is no localized tenderness There are no masses and no free fluid The blood and urine are negative Gastric analysis by the fractional method showed moderate hyperacidity

Roentgenograms of the chest confirmed the physical findings Fluoroscopic examination and plates of the abdomen after an opaque meal showed moderate pylorospasm and considerable six hour residue The duodenal cap was very large and dilated with considerable lagging of the meal in the second and third portions of the duodenum No constant deformity to indicate ulcer in either stomach or duodenum (It is barely possible that the duodenal constriction was caused by a tuberculous peritonitis)

No operation Patient left the hospital unimproved

Case 4—*Clinical Summary Neurotic girl complaining of vomiting, abdominal pain and distention, previous appendectomy with no amelioration of symptoms, Roentgen-ray examination showed gastroptosis and marked dilatation of the duodenum No ileal stasis*

Miss P (7386), aged 15 years Date Jan 25, 1917 Complaint Pain in the right side of the abdomen, vomiting and nervousness

History—The past history has no direct hearing on her present condition except to note that she had never been well or strong Average weight, 113 pounds Present weight, 106 pounds

The present illness began about three years ago when the patient complained of abdominal distention with nausea, vomiting and pain throughout the right side She was operated on two years ago for an attack of supposed acute appendicitis but her family physician states that the appendix showed very little evidence of being diseased This was followed by no improvement Her pain, distention and vomiting occur in attacks lasting one to three weeks She has almost constant nausea coming on as soon as she eats Occasionally she has sour stomach and belching The bowels are regular

The patient has had some headache and considerable vertigo She has always been very nervous and at times laughs and cries in an uncontrollable way She has had a good many fainting attacks

Examination—This revealed enlarged tonsils and several decayed teeth The abdomen was very difficult to examine as the skin appeared to be everywhere hyperesthetic and the patient could not be made to relax The physical condition was otherwise negative

The blood and urine were negative The Wassermann test was negative Gastric analysis by fractional method showed moderate subacidity

Neurologic examination was negative, with no evidence of true epilepsy

Roentgen-ray examination of gastro-intestinal tract showed some gastroptosis with slight dilatation of the stomach and very marked dilatation of the duodenum No ileal stasis, colon peristalsis was good

Medical treatment was outlined and patient returned to her home in a distant part of the state

Case 5—*Clinical Summary Vomiting and abdominal pain for five years, previous cholecystostomy without relief, visceroptosis, operation, chronic mesenteric ileus with dilated duodenum*

Mrs M (7435), aged 41 years Date Feb 17, 1917 Complaint Vomiting, and pain in the right side of the abdomen

History—The past history is unimportant Average weight, 93 to 94 pounds Present weight, 85 pounds

The present illness began five years ago with soreness in the right side of the abdomen just below the costal border, headache, nausea and vomiting On operation in another city four years ago the gallbladder was drained, no stones were found No relief was obtained and two months later she was much worse The same symptoms have continued

Vomiting generally occurs two to four hours after eating The vomitus is very sour and almost always contains much bile No relief is obtained by food or soda There are flatulence and distention There have been no attacks of acute abdominal pain The bowels are slightly constipated The stools are occasionally light colored

Examination—This proved negative except for evidence of visceroptosis and considerable emaciation, and moderate diffuse abdominal tenderness, possibly more marked in the upper right quadrant Gastric analysis was normal Blood and urine were negative The Wassermann test was negative

Operation (Dr A M Willis)—Operation disclosed adhesions about the gallbladder and a greatly dilated duodenum to a point where it went behind the mesentery, the adhesions were freed and the gallbladder removed An attempt was made to relieve the duodenal obstruction by widening the slit in the mesentery The patient was advised to follow the operation with a prolonged rest cure in order to increase her weight She made an uneventful convalescence from her operation and left the hospital much improved

Case 6—*Clinical Summary Nausea and vomiting for four years, habitus enteroptoticus, previous appendectomy, Roentgen-ray examination revealed pronounced visceroptosis with dilatation of the duodenum and stomach*

Miss R (7600), aged 20 years Date April 4, 1917 Complaint Nausea and vomiting

History—Unimportant Average weight, 85 pounds Present weight, 82 lbs About 4 years ago the patient began to suffer with nausea, headache, backache and weakness She was treated for "chlorosis" for two years She was operated on in September, 1916, for acute appendicitis Her appetite is poor She has nausea and vomiting nearly every day This generally occurs immediately after eating and the vomitus consists of food and bile She has heartburn occasionally and gnawing but no abdominal pain except at the time of her attack of appendicitis Her bowels are regular She has frequent headache, but no fever

Complete physical examination was negative The blood and urine were normal The Wassermann test was negative Gastric analysis by the fractional method showed a normal secretion

Roentgen-ray examination of the chest showed that it was extremely elongated in comparison with its horizontal diameter Heart was small and vertical There was no evidence of tuberculosis

Roentgen-ray examination of gastro-intestinal tract showed dilatation and ptosis of stomach, the greater curvature reaching into the pelvis There was no evidence of ulcer, no pylorospasm, but distinct six hour residue, marked dilatation of duodenum, whole colon was very low Also ptosis of liver and spleen

This patient was placed on medical treatment in the hospital and her vomiting ceased promptly After three weeks she returned to her home in the country to continue her treatment.

COMMENT

As to the incidence of duodenal obstruction from all causes, Anders,[8] writing in 1912, was able to collect 262 cases In over one half of this number the stenosis was the result of duodenal ulcer In twenty-nine cases, or 11 per cent , the constriction was attributed to compression by the root of the mesentery In examining Anders' statistical table it is seen that twenty-seven of these twenty-nine cases were reported by one author as having been found in 120 necropsies of patients dying with acute dilatation of the stomach[9]

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[8] Anders Am Jour Med Sc , 1912, **144,** 360

The earliest references to chronic dilatation of the duodenum appear to have been made by Glenard[10] (1889) and Kundrat[11] (1891) both of whom stated that a persistent incomplete obstruction of the duodenum by the root of the mesentery was not uncommon and led to a gradual dilatation of the duodenum and stomach Albrecht[1] (1899) mentioned two cases which he thought might have been instances of this condition and Robinson[12] of Chicago (1900) asserted that in the course of several hundred postmortem examinations he had met with fifteen or twenty examples of gastroduodenal dilatation due to such incomplete obstruction

Connor[3] writing in 1907 states that nothing is known of the clinical manifestations of such chronic obstruction but calls attention to the instances of duodenal dilatation reported during the preceding two years by three American surgeons (Finney,[13] Mayo[14] and Ochsner[15]) and suggested that these cases were probably due to mesenteric obstruction

Finney, in his brief report simply called attention to certain cases seen in the preceding five years which he believed had not been mentioned in the literature that is dilatation of the duodenum with a patent condition of the pylorus All of his cases were associated with visceroptosis and nothing that was done seemed to relieve the symptoms (chronic indigestion with nausea and vomiting) Only one of his cases was diagnosed before necropsy Gastro-enterostomy was done in several instances but was found wanting and gastric lavage gave only partial success He referred in his report to the possible benefit to be derived from postural treatment He concluded that the condition is a definite clinical entity In the discussion of his report the operations of jejunostomy and duodenojejunostomy were suggested

Ochsner's two papers, profusely illustrated from careful dissections, called attention to the hypertrophy of the walls of the duodenum which was evidently secondary to the chronic obstruction that he failed to observe or interpret Mayo simply referred to the instances of dilated duodenum reported by Finney and Ochsner and stated that he, too, had observed such a condition

Bloodgood, writing in 1912, says that he recognized his first case of chronic dilatation of the duodenum in 1906 during the course of an exploratory operation The obstruction was not relieved and the patient came to necropsy twenty-seven days after operation He describes a second similar fatal case in the service of a colleague in which a pyloroplasty was performed without relieving the symptoms (vomiting of duodenal contents) In both of these patients there was great dilatation of the duodenum associated with visceroptosis He then reports five subsequent cases in which he recognized at operation the relation of the duodenal dilatation to ptosis of the colon, and was able to relieve four of these patients completely by resection of the right half of the colon and ileocolostomy Bloodgood also refers to the report of Stavely,[16] of Washington who performed a duodenojejunostomy in 1910 for chronic gastromesenteric ileus followed by complete cessation of symptoms

Bircher[17] like Finney, looks on duodenojejunal ileus as a clinical entity He reports three patients with recurrent attacks of vomiting, and duodenal stasis on Roentgen-ray examination Operation in each of these cases showed dilated duodenum with stomach of normal size, ileum and jejunum practically empty, and a more or less rigid cord causing constriction at the mesenteric slit

Since 1912 only a few isolated reports have appeared dealing with chronic dilatation of the duodenum Barber[18] refers to the coincidence of dilatation of the duodenum and ileac stasis as recognized by Roentgen-ray studies on gastro-intestinal cases, and reports his experimental studies on dogs He found that incomplete obstruction of the extreme caudad ileum gave rise to dilatation of the cephalad duodenum but he questions whether this result is mechanical or a neuromuscular reflex

Melchior[19] in discussing arteriomesenteric occlusion of the duodenum emphasizes the fact that the organs in the abdominal cavity either float or rest on the organs below and these on the floor of the pelvis and the abdominal wall He takes exception with those authors who maintain that the viscera are suspended by their ligaments or mesentery, although there is nothing in his argument to disprove the result of traction on the mesentery in visceroptosis

Dilatation of the duodenum in childhood except in cases of congenital atresia, is apparently rare Two instances however are reported by Frank[20] One of these was demonstrated at operation in a girl 11 months old in whom there was marked dilatation of the stomach and the duodenum to the point where it was crossed by the root of the mesentery Beyond the root of the mesentery the intestine was collapsed Complete recovery ensued and the child, at 18 months of age, was well and strong and had no digestive disturbances In a second child, 2 years old, suffering from recurring attacks of vomiting, Frank diagnosed chronic dilatation of the duodenum on Roentgen-ray examination and advised operation, which the parents refused From the symptoms and Roentgen-ray findings he felt certain that the occlusion of the duodenum was due to mesenteric constriction

The symptoms of chronic dilatation of the duodenum are those of an infrapapillary constriction, that is, an obstruction below the entrance of the common bile duct and the pancreatic duct into this portion of the bowel They may be conveniently grouped as follows

1 Persistent, or recurring, vomiting In most instances the vomitus contains bile, often in considerable quantity

2 Pain in the upper part of the abdomen, generally referred to the right hypochondrium As a rule, this is described as an aching or dragging pain, but it may be severe so as to suggest biliary colic, or, in other instances, it simulates the pain of peptic ulcer with irregular food-relief

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[9] Laffer Ann Surg Philadelphia 1908 **48**

[10] Glenard De l Enteroptose Presse méd Belge 1889

[11] Kundrat Ueber eine seltene Form der inneren Incarceration abstr, Wien med Wchnschr 1891, **41**, 351

[12] Robinson Am Pract and News 1900, **20**, 124

[13] Finney Johns Hopkins Hosp Bull 1906, **17**, 37

[14] Mayo W J Chronic Ulcer of the Stomach and First Portion of the Duodenum The Journal A M A, Oct. 21 1905 p 1211

[15] Ochsner Ann. Surg 1906 **43**, 80

[16] Stavely Surg Gynec. and Obst 1910, **11**, 288

[17] Bircher Zentralbl. f Chir 1912, **39**, 843

[18] Barber Ann Surg 1915, **62**, 433

[19] Melchior Berl klin. Wchnschr 1914 **51**, No 38 abstr The Journal A M A. Oct. 31 1914 p 1611

[20] Frank Zeitschr f Kinderh. 1913 **9**, 99

3. "Habitus enteroptoticus," often associated with exaggerated lordosis.

4. Obstinate constipation is the rule, although this may not be a feature of the case. Occasionally the stools are colorless and relatively free from bile.

5. Vague toxic symptoms are common. Headache is frequently a prominent symptom. These patients appear to be peculiarly sensitive and of an unstable nervous temperament. In marked cases starvation with acidosis develops and leads to a fatal termination.

The chief clinical interest in chronic dilatation of the duodenum lies in the fact that the symptoms are almost invariably misinterpreted. In one group of cases with lesser grades of obstruction no obvious cause is noted for the condition, and it is therefore thought to be functional. As I look back on a large number of thin, neurotic, enteroptotic women whom I relieved of "hysterical vomiting" by means of rest cures with psychotherapy, forced feeding, massage, etc., I now feel convinced that my complacency in the successful outcome in many instances was due to the increase of weight which such patients obtained, thereby relieving the visceroptosis and the chief factor in chronic mesenteric ileus. The longer one practices medicine with an open mind and an inquisitive instinct, the more one questions the diagnosis of hysteria. Furthermore, a clinician has only to see the necropsy on one patient with an unrecognized chronic mesenteric obstruction, such as the first case in the series reported above, to appreciate what a real condition it is and how it is possible for the lesser forms of obstruction to pass undiagnosed except under the title of neurosis. At once there comes to my mind the sensations of a well-known neurologist who, in demonstrating several patients with disseminated sclerosis that had been previously treated for hysteria, finally exploded with the remark, "Gentlemen, there is a special compartment in hell for the doctor who treats disseminated sclerosis as hysteria."

In a second group of cases the clinical picture is very suggestive of cholecystitis. In the absence of proper Roentgen-ray studies this is the usual preoperative opinion in patients with a rather pronounced obstruction. The attacks of abdominal pain may recur over a period of months with finally insistent demands for surgical relief. In addition to the cases reported in this paper, I have had six patients with chronic dilatation of the duodenum due to adhesions and abnormal peritoneal folds, five of whom came to operation with the diagnosis of chronic cholecystitis. In the sixth patient peptic ulcer was thought to be present.

In a third group of cases with persistent incomplete obstruction, vomiting is almost continuous and leads to the death of the patient. In such cases the abundant and constant entrance of bile into the stomach is almost pathognomonic. In addition, the stomach, even when it has been completely emptied the evening before, may be found the next morning to contain large quantities of bile-stained fluid. While one expects and frequently finds more or less abdominal distention in these cases, yet the abdomen may be peculiarly retracted and soft all through the illness, as in Case 1 of my series.

The diagnosis, except in those cases discovered at operation or necropsy, can be reached only by having the condition in mind as a clinical entity, and then confirming it by a competent Roentgen-ray examination.

The treatment of chronic dilatation of the duodenum may be either medical or surgical, depending on the degree of obstruction. In the simpler cases a well conducted rest-cure, with increase of weight and the deposit of fat in the various supporting tissues of the abdominal cavity, brings about an entire cure of the condition. In more obstinate cases postural treatment has been successful. By placing the patient in the knee-chest position, the weight of the stomach and intestines pulls the viscera toward the anterior abdominal wall, thus tending to release the compression on the duodenum. The knee-chest position may be maintained for fifteen minutes every two hours, the patient lying on his face and abdomen in the intervals. If the vomiting stops for a few hours, the pleasanter left side position may be ordered, with the hips elevated. This treatment may be supplemented by frequent washing out of the stomach with the tube.

In the severer cases, where starvation and acidosis threaten, medical measures are entirely inadequate. From a review of the scattered case reports in the literature one finds that several widely different surgical procedures have been adopted with subsequent cure of the patient. Some operators have succeeded in widening the duodenal slit in the mesentery. In other cases duodenojejunostomy has been effectual. Again, resection of the right half of the colon with ileocolostomy has been done with complete relief to the distressing symptoms. With few exceptions, the operation of gastro-enterostomy has signally failed in gastromesenteric ileus. More careful study of this form of chronic intestinal obstruction will probably result in the adoption of a uniform method of procedure applicable to these cases.

CONCLUSION

We have in chronic dilatation of the duodenum a clinical entity, with a definite symptomatology and characteristic Roentgen-ray findings, due to compression of the terminal portion of the duodenum by the root of the mesentery. It is a feature of many cases of visceroptosis and is a remediable disease subject to proper mechanical treatment.

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ABSTRACT OF DISCUSSION

Dr. Lewis A. Conner, New York: Dr. VanderHoof has rendered us a real service in bringing to our attention so clearly this clinical picture which, for most of us, certainly is not one which is apt to come into mind. Duodenal obstruction and duodenal dilatation we have been more familiar with as an acute condition in association with acute dilatation of the stomach. The chronic type is perhaps really the more important and frequent type, and is one to which attention certainly should be drawn. The mechanical factors involved are still, it seems to me, very obscure. There can be no doubt that the obstruction by the root of the mesentery and by the superior mesenteric artery is a real one, but when one attempts to explain what the conditions are that bring about such an obstruction, there are many difficulties. Certain things are obviously necessary; if the mesentery is to pinch the duodenum, it must be tight and there must be traction in a certain direction. Those conditions are fulfilled by the small intestine being in the true pelvis and being empty; it cannot be in the true pelvis unless it is empty. Dr. Bloodgood and others have emphasized the drag of a mobile caput coli as an important factor. Apparently the mesentery must be neither too short nor too long in order to constrict the duodenum. An increased lordosis of the lumbar spine or downward displacement of the terminal portion of the duodenum certainly predisposes to constriction. Undoubtedly some of the cases which have been classed as functional recurrent vomiting are instances of constriction of this terminal portion of the duodenum The difficulty is to say just which of them are because we know that they are not all of that type It seems to me important to emphasize the fact that the obstruction and not the dilatation is the important thing We will have to rely chiefly on the Roentgen ray findings for diagnosis There are however a few things to bear in mind the difficulty of diagnosis is greater because of the fact that cases of persistent vomiting from whatever cause are apt to be of duodenal type Any persistent vomiting soon becomes intestinal in character the vomitus contains bile and pancreatic juice and is alkaline and has most of the characteristics of duodenal obstruction so the type of vomiting cannot be relied on as evidence of actual obstruction One other matter is important to bear in mind When there is high intestinal obstruction great diminution or suppression of the urine is one of the common and reliable symptoms and it seems to me that the behavior of the urine may help us to make the diagnosis and give us a clue to the progress of the condition and the necessity for surgical interference

Dr. George R Satterlee New York There is one important point to bring out We have all seen duodenal obstruction or duodenal dilatation due to obstruction around the ileocecal region as Dr Bloodgood has pointed out I have been struck by the number of patients who have a duodenal dilatation as shown by the Roentgen ray and who have merely an enteroptosis also by the fact that this is connected with atonic dilatation of the cecum these two things often go together In visceroptosis there is a drag on the mesentery, and we have a great many reflex reactions through the sympathetic nerve system Now the symptom of dilated duodenum is often pain and I should like to cite a case in which the pain was in the liver region and the patient was operated on for relief of pain and there was found a long ptosed gallbladder and enteroptosis Later the patient was operated on for appendicitis and was finally relieved by the proper treatment for enteroptosis namely posture If we cannot decide that it is an operative case we can place this patient in proper posture by elevation of the foot of the bed abdominal support and proper treatment of the constipation etc which may give relief to the pain and is worth trying It seems to me a great many of these enteroptotics are treated for neuroses

Dr. F B Turck New York The presentation of these eleven cases is very important because it opens up the clinical view of scientific facts which have been recently investigated in this country Dr Senn of Chicago brought out in 1888 some experimental facts on intestinal obstruction and proved that mechanical obstruction alone cannot produce symptoms Senn also showed that not until the venous circulation is interrupted do pathologic conditions arise The work of Dr Whipple and Dr Hartwell has shown that complete obstruction is necessary before any symptoms can be produced The fact that there is in duodenal disturbance a dilatation of the cecum with atony shows that it is not merely a mechanical question It points to some more general functional derangement. We found through our experimental work that colloid material (undigested albumin such as white of egg or bacteria in suspension) can penetrate unchanged into the walls of the intestines and can pass along the submucous tissue cephalad Reaching the upper intestinal tract they are split up by the action of the powerful enzymes in the wall and toxic effects are produced We produced symptoms of degeneration and fatigue in the muscle cells, and the two conditions are identical in man and animals We are dealing with biologic problems in these cases of atonic dilatation, and we must treat them along biologic lines, and not look on them as being simple problems in mechanics alone. We are dealing with physiologic laws, which we must meet with physiologic methods of treatment

Dr W L. Bierring Des Moines, Ia I should like to add an observation to this discussion In a case of tabes with attacks of epigastric pain and vomiting the roentgenologic examination revealed a stenosis of the duodenum, which justified reference to the surgical service for operative relief When the viscera were exposed the stenosis was recognized as spastic in nature similar constriction occurring in the stomach and the site varied with succeeding peristaltic waves The attacks of pain and digestive distress in this instance were incident to visceral crises, and illustrate that the condition referred to in the paper may be simulated in organic nervous diseases

Dr Franklin W White, Boston Since this condition of chronic duodenal obstruction has been so clearly described, it is well to remember its extreme rarity even when the digestive organs drop down very low This may give a sharp duodenal angle but the angle rarely causes obstruction The duodenal angle may be compared with the splenic flexure which is usually sharp but not obstructive We must consider function and not anatomy I am sure the time is now at hand when the diagnosis of duodenal obstruction will be made not at operation or necropsy, but by the Roentgen ray No other method shows so well the place and degree of obstruction in the digestive canal

I should like to ask how much residue was left in the duodenum and how much delay in emptying the stomach was found in these cases

The symptoms will prove a poor guide in diagnosis Many of these patients have congenital asthenia and ptosis the symptoms of which blend with and cover those of dilated duodenum The Roentgen ray will help us most in diagnosis The treatment is largely that of marked ptosis

Dr Douglas VanderHoof Richmond Va Dr Conner is well qualified to discuss this subject In his monograph published ten years ago he went thoroughly into the causes of acute dilatation of the stomach and duodenum The thing that caught my eye at that time was Dr Conner s statement that practically nothing was known of the symptomatology of chronic obstruction in the duodenum As a matter of fact references in the literature show only sporadic case reports Dr White is quite correct I am sure in emphasizing the physiology as well as the anatomy of such forms of obstruction In answer to his question as to how much residue may be left in the stomach in these cases and how much delay may occur in the duodenum I should like to read a brief description of the Roentgen ray picture in these cases (See reference to Jordan's article which had not been read when the paper was presented) Barber s experiments showed that partial constriction of the caudad end of the ileum produced dilatation of the cephalad end of the duodenum He questions whether the result is mechanical or due to a neuromuscular reflex To my mind the effect is mechanical associated with the mesenteric drag and subsequent duodenojejunal kinking

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Fermi's Modification of Pasteur Treatment of Rabies—C Fermi is professor of hygiene and chief of the Pasteur Institute of the University of Sassari, Italy He has recently published the full details of what he calls the new Italian method of antirabies treatment' although it has been in use since 1909 The vaccine is a 5 per cent emulsion of the most virulent fixed virus made from the brain (rabbit or dog) rendered avirulent with 1 per cent phenol (carbolic acid) He uses mixed with this vaccine an antirabies serum derived from the horse, prepared with this vaccine for the antigen (two daily injections of 10 c c of the vaccine) for a month, pause of two weeks then continued another month, pause of twenty days withdrawal of from 3 to 6 liters of blood The antirabies serum thus obtained is mixed with three times its volume of the vaccine, and after the mixture has stood on ice for twenty-four hours, 3 c.c. are injected subcutaneously in the morning and 3 c.c in the evening This is repeated for five or ten days and then for an additional twenty or fifteen days the vaccine alone is injected A set of vials for home treatment comprises ten or twenty vials of the serovaccine mixture, and forty or twenty of the vaccine alone The 164 page pamphlet describing the technic and the comparative tests and experience with it was issued as a supplement to the *Annali d Igiene* 26 (Via Sistina 14 Rome)

THE FAMILIAL TENDENCY TO FAT INCAPACITY IN INFANCY AND CHILDHOOD *

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The occurrence in a certain number of babies of an inability to digest the usual dietetic amounts of the fat of cow's milk is now generally accepted Many of us, however, recall the day when not only was this element of cow's milk given to babies in amounts which for some proved excessive, but when the cause of the bad results from such feeding was sought among the other elements of the milk

When later the real factor was recognized, the *reduction of the excessive fat and the use of mixtures* made from whole milk, though often remedial, did not serve in all cases to eliminate the difficulty, and the next logical step was to employ milk, more or less skimmed, in feeding infants whose digestive capacity had been seriously disturbed

It is possible that the pendulum swung for a time too far in this direction, owing to a failure to recognize still other factors which entered into the feeding problem Nevertheless, it must be admitted that a certain residuum of babies may still be found who do not tolerate well the fat of cow's milk, and it is one of my purposes to carry this a step farther and point out that it is not always a temporary incapacity, which may be overcome by careful feeding, but is in some instances an inherent characteristic which must be recognized if the best results for the individual are to be attained in later infancy and childhood

Our knowledge of this matter has been of slow growth, certain obvious analogies in somewhat later life having been apparently overlooked Long before the days of modern infant feeding, it was currently accepted that certain adults could not take cow's milk in any quantity without suffering as they asserted, from constipation and "biliousness" Even before the recognition of fat constipation in infancy and childhood, it was known that some of these adults could take skimmed milk or fat-free buttermilk without producing these symptoms

Of late years, pediatricians, in increasing numbers, have found that older children suffering from nutritional disturbances of rather vague origin but more definite symptomatology were not only not benefited when they were given more of a supposedly digestible milk, but were greatly improved when the quantity of their milk was reduced, when it was skimmed, or, in some cases, when it was withdrawn entirely from the dietary In some instances, this has apparently been done because of a suspected analogy to the fat incapacity of infancy, but more commonly on the ground that the milk did not agree with them

Some who have so treated older children must have been aware, from the histories in their hands or from careful inquiry that these children had suffered at some time in their infancy from fat injuries or incapacity, but so far as I know, no deductions have been drawn in our literature from this significant relation

Let me state the proposition this way If not a few older children are found who do better with little or no milk and whose histories reveal that they suffered in infancy from disturbances evidently due to the fat of cow's milk, is it not a justifiable deduction that a certain number of infants who have shown a fat incapacity cannot wisely be given much whole cow's milk as they grow into childhood?

I myself have long since recognized that it was a mistake to aim at getting all such infants back to a full-fat milk, but that more general success was to be attained by continuing to feed partially skimmed milk, and to limit its amount in order that the sum total of fat, even in such skimmed milk, should not exceed their capacity

The latter precaution is not irrational, for we have some precedents We recall that although this country passed through a period of high fat feeding for infants, we did not originate the term *Fettnahrschadigung* This came from German sources, and the Germans habitually use dilutions of whole milk in infant feeding and not our superfatted mixtures There the only explanation of the fat injury lay in the fact that even diluted whole milk, if given in the strong mixtures commonly employed abroad, could carry with it sufficient fat to overtax the infant's capacity This overtaxing may have occurred more frequently because disturbances of digestion are complex in their origin, the more evident fat indigestion being aggravated by similar if less evident difficulty arising from overfeeding with the other elements of the milk

A similar overstepping of the capacity for fat can be reached in susceptible patients who are taking partially skimmed milk, a typical example of which I observed last summer Although 5 ounces of cream were removed from the quart bottle before the milk mixture was made, loose irritating stools were caused when the daily quantity of partially skimmed milk was pushed beyond a certain point Exactly the same effect had been produced previously by increasing the fat content of the milk employed without increasing the number of ounces used in the mixture This underweight baby of 14 pounds gained 4 pounds from August to November, only to show the old symptoms on the gradual but injudicious addition of 2 more ounces of the partially skimmed milk The parents have now been warned against attempting to give their baby other than skimmed milk throughout its childhood, and that if they do give it whole milk, obscure symptoms of nutritional disturbance may appear, the cause of which may not be recognized

If the plan of adhering to skimmed milk were followed in more cases of limited fat capacity, the progress of such children would be more normal, and the skimmed milk, which is in itself a valuable food, could be retained in the dietary Also, it would less frequently be necessary to eliminate milk altogether from the dietary of older children because of long standing subacute digestive disorders

Associated with such disorders, we often find a characteristic lack of appetite and a small range of diet, many ordinary wholesome articles of food being refused whimsically, probably because the children have been cloyed with their milk fat Often also they have been allowed butter very freely, owing to a desire to improve their nutrition This hydrocarbon satiety and disturbance is doubtless comparable to the carbohydrate satiety found in children who have been allowed an excess of sucrose

This same disturbing element may at times be recognized in children not especially predisposed to such disturbance who habitually drink excessive quantities of milk daily, or a considerable amount of high-fat milk from fancy blooded herds of Jersey, Alderney or Guernsey cows In such cases, a reduction of the milk taken or the removal of a part of the cream may be all that is essential to bring about improvement

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* Read before the Section on Diseases of Children at the Sixty Eighth Annual Session of the American Medical Association New York, June, 1917

Thus far I have not spoken of any familial tendency to fat incapacity The recognition of this tendency followed naturally from the observation in the same families of more than one infant showing limited fat tolerance although the methods of feeding employed varied with the intervals elapsing between their births It was inevitable, in caring for successive children born into the same families that the digestive difficulties and peculiarities of the earlier children should be recalled when undertaking the feeding of a new scion of the house This is a concrete example of the value of that type of experience which may be lost with the passing of the old time family physician

When, however, an infant born before the days of the recognition of limited fat tolerance, had been difficult to feed, and a second infant, born about the time of our realization of the import of such limitation, had been rescued from similar difficulties by the application of the new knowledge, what could be more natural than that, with the advent of a third baby, similar tendencies, when manifested, should be met at the outset by appropriate measures, and much better results obtained?

The foregoing sketchily outlines an earlier experience in one family A more recent one is as follows Two children had previously been born in a family, each had thriven remarkably well at birth, but each in turn, on being weaned at 9 or 10 months of age, had done very poorly on cow's milk, remaining approximately stationary for months until limited to a pint of skimmed milk daily, with increase of other foods to provide for their caloric needs With the birth of a third child, there was the same successful maternal nursing, but when the time for weaning came, instructions were given that the baby should receive only skimmed milk, supplemented by other food This was clearly understood by the parents not to be a temporary but a permanent order

The results were most satisfactory Progress on the bottle was uninterrupted, and the child has done well, in marked contrast to the two older children While always unsafe to generalize on a limited number of instances, the last case certainly has every appearance of substantiating the familial theory on which the feeding was planned

The title "familial tendency" has been employed to focus attention on successive instances of fat intolerance in the same family, as well as to suggest caution in the giving of normal amounts of fat to infants subsequently born into such families Final acceptance of the theory must, of course, await corroboration from the experience of others

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ABSTRACT OF DISCUSSION

Dr. Louis C Ager, Brooklyn I do not think any of us can doubt for a moment the occurrence of such cases as Dr Southworth has mentioned We know it from previous generations in which there is inability to digest fat. What I want to point out is the danger of having this idea promulgated without a warning While it is true that there is a small proportion of children unable to digest any fat, we have a very much larger class in which fat intolerance has been produced by high fat feeding, which we have not become rid of in New York, at any rate Those children can be brought back to a normal fat digestion if the problem is worked out with sufficient patience, but when a parent has learned that a child has been disturbed by fat feeding, it makes her fear it I know of three instances in which it was very difficult to persuade a mother gradually to go back to normal fat feeding and in one instance, when another child came into the family, the mother could hardly be persuaded to use a normal fat formula The average child will digest a normal amount of fat without difficulty

Dr Frank C Neff, Kansas City, Mo Dr Southworth has made a valuable observation in this matter of familial tendency to fat intolerance although I think we must be very careful about determining whether it is a familial tendency, or due to unwise feeding The physician should have attended several children in the same family in order to determine whether it is a familial tendency, rather than a condition due to fat injury Again, I think we make a mistake in determining that fat intolerance is due to one element rather than to the food itself There is a cow's milk incapacity in certain families, because we undoubtedly find parents as well as children who have never been able to take milk without untoward results Therefore, in order to be able to say that it is a fat incapacity the character of the stools should be studied Then the fact that the baby has never thriven even on breast milk is important My experience has been that where the child has not gained properly, even on breast milk the reason has been an inability to digest the fat contained in the breast milk which undoubtedly is higher than in the ordinary milk mixture, and therefore trouble would show up if fat incapacity were the real trouble

Dr Fritz Talbot, Boston In considering fat incapacity in the infant we must all bear in mind that it is a hard thing to say that fat is the sole and primary cause of the indigestion and I think the term "fat indigestion" is very loosely used Many times what seems to be fat indigestion is due to too much sugar The diagnosis of fat incapacity should be made only when other causes have been ruled out Experience has shown that in many instances the fat in cow's milk cannot be digested, while the fat in butter, cod liver oil, or olive oil is digested in a normal manner Mistakes of diagnosis can be eliminated in many instances by careful microscopic examination of the stools If there is not fat in the stools, or only a very small or microscopic amount, then one can be pretty sure one is not dealing with fat as a basis for the trouble

Dr Bert R Hoobler, Detroit It seems to me we are treading on dangerous ground in attempting to attribute this to familial tendency It is much more apt to be the method of living that has been prevalent in the family Perhaps the cook has been in the habit of serving certain types of food largely, and using large quantities of cream or butter in the food I recall some instances in which I have been exceedingly interested in finding several children suffering from what has been called fat incapacity or indigestion These families went out in the spring to a country home where there was a fine herd of Jersey cows, and it was not long before I was beginning to make visits to the home At first we tried to eliminate these troubles by prohibiting milk, and giving the children skim milk, but still the trouble persisted, and not until I got into the kitchen and inquired how the cook prepared the food, was it possible to get at the real difficulty I think oftentimes this is the real difficulty, rather than an inherited tendency

Dr. David E. English, Summit, N J Dr Southworth did not say anything about the breed of cow Is it not true that the Guernsey and Jersey cows produce milk with a fat globule that is too large and too tough for the infant to digest easily? Does it not make a difference in those babies who seem to have an idiosyncracy to milk fats if they are given milk from a cow of a different breed?

In the milk commission, of which I am secretary, we have found that a mixture of 45 per cent. Holstein, 45 per cent Devon (or red cow) and only 10 per cent. Jersey makes a more even percentage of fat, our average for the year being 4 18 I should like to ask if the breed of cow was taken into consideration in this study of fat incapacity

Dr. Thomas S Southworth, New York First, I might answer Dr English's question I spoke of the fact that such fat disturbances could readily arise from taking considerable quantities of the milk of Jersey, Guernsey or Alderney cows, as well as from taking excessive amounts of milk of lower fat content. It is somewhat difficult always to separate in this type of cases a fat injury from a natural fat incapacity The fact is, where the infant has a limited fat capacity, a food injury may be produced by normal amounts of fat.

In answer to Dr Ager and his caution, which is a proper one, I would say that this paper is directed to the profession and not to the laity

I believe Dr Neff is right, although I have not said in my paper that a tendency to fat indigestion may be found in some parents as well Very fat breast milk unquestionably, as has been said, often starts trouble Where there has been difficulty in digesting a high fat in breast milk, one often finds trouble with normal amounts of fat in cow's milk, and these children are notoriously difficult to shift over to artificial feeding This is very commonly done on the supposition that the mother's milk is bad or poor, when really it is a high fat milk

In answer to Dr Hoobler, I would say that in many cases of children having fat disturbances, when one has not seen them in infancy, if one goes carefully into the history one can trace the cause in many instances to trouble with fat feeding in infancy The fancy herds of cows possessed by well-to-do families are certainly great factors in fat disturbances I remember one family in which child after child had trouble, and investigation brought out that they were having very rich milk sent in from the country The superintendent of the farms, desiring to make a particularly good showing, was shipping milk in bottles from the tops of the cans, which gave too large a percentage of fat for these children.

CHOLECYSTOSTOMY VERSUS CHOLECYSTECTOMY *

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What is the function of the gallbladder, and of how much importance is it to the human economy? This is the paramount question that presents itself in a discussion of the relative merits of cholecystectomy and cholecystostomy Man does not need bile in the intestine except when digestion is going on During the period that the bile remains in the gallbladder it undergoes important changes, as is shown by comparison of the bile obtained from the gallbladder and that obtained from the bile ducts During its stay in the gallbladder the bile has added to it mucin or nuclear albumin, and what is of much greater importance during its stay in the gallbladder, the bile has added to it sodium glycocholate and taurocholate According to the tables of Yeo and Herroun and Hoppe-Seyler,[1] this gain of the combined salts amounts to 3 69 parts in 100 parts of bile The secretion of pancreatic juice parallels the discharge of bile from a fistula The bile activates the pancreatic juice Williams and Martin[2] have shown that the amylolytic power of pancreatic extracts is doubled by the addition of bile salts The fat-splitting action of pancreatic juice is trebled by the addition of bile

The neck of the gallbladder is on a higher level than the lowest point of the gallbladder, therefore, the weight of the bile is away from rather than toward the outlet The muscular coat of the gallbladder is strong and the fibers are disposed both longitudinally and transversely The mucous secretion of the gallbladder is abundant There is a well developed sphincter of the common duct The gallbladder is present practically always in man and in those animals whose digestion may be said to be intermittent rather than remittent and continuous Animals that have no gallbladder have relatively large bile ducts Experience has shown that removal or obliteration of the gallbladder in man leads to dilatation of the bile ducts, while experiments on the lower animals show the same results

The results of the experiments of Judd and Mann of the Mayo Clinic,[3] which were published since this paper was written, confirm these observations These observers concluded that the dilatation following removal of the gallbladder is due chiefly to the sphincter of the common duct They also found that the dilatation was less marked in goats after cholecystectomy than in dogs after the same operation The inevitable conclusion from these experiments seems to be that for a time (about sixty days) after removal of the gallbladder there is increase in the pressure in the ducts, that by this time the ducts are fully dilated, the sphincter loses its power, and with a constant flow of bile into the intestine the bile pressure falls

The effect on the pancreas of increased pressure of the bile within the ducts has been amply demonstrated Flexner[4] reports from his experiments that the entrance of bile modified by a diminution of its salts or by an increase of colloid material into the pancreatic duct is likely to set up chronic pancreatitis, while fresh unaltered bile sets up acute changes Hohlweg,[5] in making gastric analyses from thirty-nine patients following extirpation of the gallbladder, found that only 10 per cent had normal hydrochloric acid The remainder, 74 3 per cent, had either subnormal values or actual deficit of hydrochloric acid Among forty-three patients with closure of the cystic duct or atrophy of the gallbladder, 84 per cent exhibited a hydrochloric acid deficit Deaver[6] says "It is our firm belief that the gallbladder has important functions to perform, of which the chief are to equalize the pressure of bile in the ducts and to secrete mucus which shall dilute the bile" With all the foregoing facts in mind we cannot accept Moynihan's[7] dictum that the gallbladder is devoid of any strikingly useful purpose On the contrary, the conclusion seems inevitable that in man the gallbladder has a very important function to perform In a word, it may be said that the gallbladder in man is an important organ but not a vital one

In what proportion of cases is the gallbladder the principle or sole cause of the trouble in so-called gallbladder disease? If this question were definitely answered, one could see his way much more clearly to a decision as between cholecystectomy and cholecys-

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty Eighth Annual Session of the American Medical Association, New York June 1917

[1] Yeo and Herroun, and Hoppe Seyler, in Starling Human Physiology, 1912, p 801, ff

[2] Williams and Martin Gray s Anatomy, Spitzka, 1910

[3] Judd and Mann Surg Gynec and Obst 1917, **24**, 437

[4] Flexner, in Kemp Diseases of the Stomach, Intestines and Pancreas, Ed 2 1912 p 939

[5] Hohlweg, H Am Jour Med Sc, 1913, **146**, 292

[6] Deaver and Ashhurst Surgery of the Upper Abdomen, 1913, **2**, 115

[7] Moynihan Abdominal Operations, Ed 3, Philadelphia, W B Saunders & Company, 1914, **2**, 289

tostomy Women who have borne children are peculiarly prone to gallstone disease This is because in pregnancy there is an increase of cholesterol in the blood This cholesterinemia has been found to continue for some time after the birth of the child[8] Aoyama[9] has shown by experiments that the administration of cholesterin or oleic acid by mouth causes a deposit in the gallbladder of granules like cholesterin Rothschild[10] and others have shown that the cholesterin content of the blood depends on the type of food that the organism consumes, and Gerster[11] has recently reported three cases in his own practice which strongly confirms Rothschild's opinion Henes'[12] studies concerning the cholesterol content of the blood confirm the findings of Rothschild and Gerster Out of 320 gallbladders removed at Rovsing's[13] clinic 54 per cent were found as a result of systematic bacteriologic study to be sterile In cases in which a single large stone is found the percentage of sterility was 52 7, whereas in the cases with small mulberry-shaped stones the percentage of sterility was 77 Rovsing quotes Boysen as saying that he invariably found that the gallbladder was sound when the gallstones were of the small primary bile-pigment calcium type

Deaver[14] reports that of seventy-nine patients in the German Hospital with chronic pancreatitis, 91 per cent showed evidence of infection in the bile passages, while Mayo found that 86 per cent of 359 cases of pancreatitis were accompanied by gallstone disease

The experience of Rothschild and Gerster, referred to above, together with that of Rhodes,[15] lends color to the view that in a large percentage of cases presenting symptoms which ordinarily lead to gallbladder surgery, as well as in a large percentage of those not cured by cholecystostomy, the cause of the symptoms lies not in the gallbladder at all but in the bile itself A careful weighing of the evidence produced seems to force one to the conclusion that disease of the gallbladder itself is relatively rarely the cause of the symptoms for which the so-called gallbladder patient consults the surgeon

Let us now look at the clinical experience of the various surgeons regarding the relative merits of cholecystostomy and cholecystectomy In a study made by C H Mayo,[16] of 242 cases of cholecystostomy he found that 53 per cent of the patients were cured, 38 per cent improved and 9 per cent not improved In 219 cases of cholecystectomy the percentage of cures was 71, while 22 per cent were improved and 7 per cent not improved This study shows 18 per cent of cures in favor of cholecystectomy, while the percentage of improvement is higher in the cholecystostomies by 16 The percentage of those not improved was 2 higher in cholecystostomy than in cholecystectomy

Clark[17] says that of late years he has resorted to cholecystectomy in a greater proportion of cases because his experience has shown that, if the gallbladder wall is much diseased and the symptoms have been marked and prolonged, this operation gives better results than cholecystostomy

W J Mayo[18] is of the opinion that cholecystostomy may be an efficient procedure in gallstone disease when the gallbladder is normal and the ducts are free, but that in cholecystitis the method is not satisfactory He is of the opinion that cholecystectomy is indicated in 80 per cent of the cases of gallstone disease

Lane[19] says that his experience of the past year is that cholecystectomy is the operation of election for cholelithiasis Ochsner,[20] on the other hand, says that cholecystostomy is the operation of choice for removal of stones from the gallbladder Swope[21] reports 96 8 per cent of cures following cholecystectomy and only 74 8 per cent of cures following cholecystostomy In the discussion of Swope's paper, Erdmann of New York said that unquestionably cholecystectomy limits morbidity and increases efficiency, and largely for this reason he announced that for the past year he had been doing cholecystectomy practically in every instance In discussing the same paper, Keefe of Providence pointed out the fact that morbidity followed after cholecystectomy as well as cholecystostomy, and said that he believed those men who were taking out all gallbladders were doing a great deal of harm

Deaver[14] says that they believe cholecystectomy should scarcely ever be preferred in simple cases of cholelithiasis, but says that it is indicated in cases, which he notes in detail, wherein the gallbladder is grossly diseased This author[22] refers to a patient of Dr Rysen's who at that time was carrying a T tube in the common duct and had been for over two years subsequent to a cholecystectomy, because on two occasions she had experienced recurrence of symptoms after removal of the tube C H Mayo[16] says that the persistence of gastric symptoms after cholecystostomy is evidence that the gallbladder should have been removed

Hubbard and Kimpton,[23] in a study based on 226 operations, conclude that the failure to obtain a permanent cure in the majority of cases of gallstones is due to the fact that stones have been overlooked and left behind Certainly this mishap is quite as apt to occur in cholecystectomy as in cholecystostomy Buchanan,[24] in a paper based on a series of 300 operations on the gallbladder, notes the difference that obtains between operators of large experience in different clinics, and concludes that "cholecystostomy is not a satisfactory operation, as it gives but 81 7 per cent of ultimate cures, that cholecystectomy would not be satisfactory if employed in all cases by operators of ordinary skill, that there is a field for both operations and that surgeon will have most success who will not only consider the condition of the patient but estimate justly his own capability"

From the foregoing it will be seen that there are those, Lane and Erdmann, for instance, who believe that cholecystectomy is the operation of election for cholelithiasis, and on the other hand those like Ochsner and Deaver who believe that cholecystostomy is the operation of choice for the relief of stones in the gallbladder, and still others of equal experience and skill who seem to occupy a middle ground

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[8] Henes Edwin Jr Surg Gynec. and Obst July, 1916, p 93
[9] Aoyama Am Jour Med Sc 1915 p 764
[10] Rothchild M A, and Rosenthal, N Am Jour Med Sc, 1916 p 394
[11] Gerster Progr Med. June 1916 p 164
[12] Henes Surg Gynec and Obst July 1916 p 91
[13] Murphy Practical Medicine Series, 1916 **2**, 481
[14] Deaver Surgery of the Upper Abdomen 1913 **2**, 323
[15] Rhodes Surg Gynec and Obst, October, 1916, p 399
[16] Mayo C H Collected Papers of Mayo Clinic, 1915 **7**, 262
[17] Clark John G Am Jour Med Sc, 1914 **148**, 265
[18] Mayo W J Am Jour Med Sc. 1914, **147**, 469
[19] Lane John W A Plea for Cholecystectomy The Journal A. M A Nov 20, 1915 p 1794
[20] Ochsner New Manuel of Surgery Ed 4 1915 p 517
[21] Swope, L. W Am Jour Obst November 1915, p 804
[22] Deaver Ann Surg 1915 **62**, 201
[23] Hubbard and Kimpton Ann. Surg, 1915 **61**
[24] Buchanan Surg, Gynec. and Obst, 1915 **21**, 499

We have here a difference of 21 8 per cent in the results of cholecystostomy as reported by C H Mayo and Swope, and a difference of 25 8 per cent between their results after cholecystectomy In 1914 Graff and Weinert[25] traced 124 of their cholecystectomies, and found that only 73 4 per cent were permanently cured, whereas Schultz, in a series of 510 cholecystectomies, had been able to examine only 145 cases, and makes the surprising statement that not one had any evidence of recurrence of the former or any other untoward symptoms Of course, no one questions the exactitude of these figures Neither can the discrepancy be accounted for on the ground of difference in skill between the various surgeons quoted One is forced to the conclusion, therefore, that the difference is accounted for in the different pathologic conditions that were met The very considerable danger of overlooking stones in the common duct, as pointed out by Kehr, Eisendrath and others, should be constantly borne in mind A stone in the common duct of a person who still retains his gallbladder is not so great a menace as a stone in the common duct of a person on whom cholecystectomy has been performed

The important question to decide is not whether cholecystectomy is preferable to cholecystostomy or vice versa, but rather whether in a given case surgical treatment is called for at all, and if so, what particular kind of surgical procedure best fits that case

ABSTRACT OF DISCUSSION

Dr Howard Lilienthal, New York I agree with Dr Porter that operation in any given case should not be performed with a preconceived idea of what one is going to do So far as the question between the two operations is concerned, I shall say that for more than twelve years I have steadily and persistently removed every gallbladder that was diseased enough to be operated on Had I had any cause to regret that mode of procedure I would have changed it I am satisfied with the results of cholecystectomy in my hands and in those of my colleagues at Mt. Sinai Hospital In Dr Eisendrath's specimens in the scientific exhibit you will see how absolutely hopeless it is to be sure the stones have all been removed when the gallbladder has merely been opened

A question of importance is the course to be adopted when, in the performance of another operation, gynecologic, for instance, gallstones are found The case is not an unusual one Suppose you are performing an operation for fibroid, perhaps because the patient has complained of gastric symptoms, and a fibroid is present which you think accounts for these symptoms You examine, as you ought to do, the gallbladder and find stones there It is at least just as probable that the gallstones caused the gastric symptoms as that the fibroid did If you take the fibroid out the patient will have to be told that the gallbladder must be removed later on In such a case I would advise cholecystectomy with the operation for the fibroid deferred.

Dr H J Boldt, New York I should like to ask Dr Lilienthal why in such a case as he cited he would leave the fibroid operation and take out the gallbladder I have had two such cases this week in which I took the gallbladder out with the fibroid

Dr Howard Lilienthal, New York I said that in a patient suffering from gastric symptoms in whom I found a shrunken, diseased gallbladder packed full of stones I would remove the gallbladder at once and leave the fibroid until later The extirpation of such a gallbladder may be a dangerous operation, and I think it would be unsafe surgery to perform such an operation and the operation for the fibroid at the same time My reason, in view of this, for removing the gallbladder first is that the gallbladder condition is the more immediately threatening of the two in such an instance, not to speak of its possibly becoming the site of carcinoma later on I take away that which causes symptoms and threatens life

Dr J H Carsten, Detroit In cases such as Dr Lilienthal referred to there are usually symptoms indicating stomach trouble, and sometimes there is good reason to suspect that all the trouble is with the gallbladder I tell the patients that if I find the gallbladder diseased, I will operate on that also In virtually all abdominal cases I explore the stomach and gallbladder regions when I perform a section I am always prepared to operate on the gallbladder in any kind of a gynecologic operation So far as the gallbladder is concerned, I have operated on a few in the last twenty-odd years and I do not see why so much should be said about recurrent attacks of gallstones I cannot operate any better than any one else I open the gallbladder and drain it because I cannot tell whether the stones are all out There are sometimes little ones in the wall of the bladder that I cannot detect, and that patient is going to have trouble in the future If I put in a tube and leave the wound open for a week or ten days, any stones in the gallbladder or in the duct (coming down from the liver) will come out Quite a few will pass in the course of a week. There is no reason then to expect any recurrence That is the reason I drain In the case of the single stone, after removing it I sew up the gallbladder and drop it back and close the abdomen without drainage In such a case, as a rule, there is no septic infection and no danger of recurrence. When the gallbladder membrane is diseased I think the gallbladder should come out, but these are exceptional cases The operator should select his cases carefully and perform the operation indicated in the individual case While a person can live without his gallbladder, I think it is a great deal better to have it in place, doing its work I think we ought not to be extreme in advocating one operation above another

Dr D C Strong, San Bernardino, Calif Twenty years ago there was a controversy between the medical men and the surgeons as to whether this was a disease for medical or for surgical treatment. We must take into consideration the history of the case, how long it has existed, and the character of the disease preceding the attack We have been taught that gallstones follow typhoid fever My experience is that gallbladder disease follows pneumonia Any digestive disturbance lasting over a considerable time should be seriously suspected of being caused by the gallbladder If we teach ourselves to look for gallbladder impaction instead of gallstones, we may so teach the medical man, until then we had better not say much to him In the old case, cholecystectomy is the operation of choice If we can get the case sufficiently early we may talk about drainage, perhaps We should take into consideration also the end-results, and such focal infections as we find about the mouth I have had three abdominal operations for gallbladder disease, in the last the gallbladder was taken out, since when I have had no more trouble.

Dr J W Vaughan, Detroit I am in accord with Dr Porter's paper Formerly I performed a great many cholecystectomies, but have performed fewer since hearing Dr Judd's paper It has seemed to me that the resulting dilatation of the common duct with the increased flow of pancreatic juice and bile into a duodenum which very frequently is empty and does not need this increased flow at such a time might do harm Again, there results obstruction to the action of the sphincter muscle, which Dr Porter has shown to be a bad procedure One is apt to get also retrograde infection and a pancreatitis as a result of the dilatation of the common duct Every case must necessarily be treated according to the indications

Dr Miles F Porter, Ft. Wayne, Ind I do not think there ought to be much disagreement, but I must disagree with my friend who has his gallbladder out, on his method of argument. It reminds me a good deal of the man who knew perfectly well that the story of the ark was all right and correct because he had a friend who had given him a stone from Mt. Ararat That is exactly the sort of an argument which this paper is written to combat. A few weeks before I came here

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[25] Graff and Weinert, quoted by Buchanan (Note 24)

I performed a second operation on a woman who had had a cholecystectomy, and in that second operation I removed a handful of stones from her dilated common duct. We must not conclude, therefore, that cholecystectomy is always wrong. The point I want to make is that there is overwhelming proof that in man the gallbladder is an important organ, and that, therefore, unless there is a good reason for taking it out, it should be allowed to remain in. On the other hand, I think it is as conclusively proved that in many of theses cases the gallbladder has already been put out of commission by pathologic processes. To allow that sort of gallbladder to remain in an abdomen is to do imperfect work.

OBSERVATIONS ON THE EXCRETION OF DYES*

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The excretion of dyes offers a problem which is of interest from a variety of standpoints. It has a physiologic application on account of the light which it may throw on the functions of the excretory organs, and on the mechanism utilized by the body for the removal of waste material. Pharmacologically, it offers a simple method for the investigation of relationship between chemical structure and excretory function. Finally, it affords the clinician an instrument of precision in determining excretory activity. The method was introduced many years ago in the study of kidney function, and a variety of dyes have been employed for this purpose, of which the one in most general use today is phenolsulphonephthalein. An attempt has been made to study liver function in a similar manner, but the procedure has not proved entirely successful. The present paper reports on certain observations which throw new light on various aspects of the problem.

It has been found that some of the dyes of the diazo series are tolerated in large amount when given intravenously to human beings. We have injected in one dose as much as 1 gm. of Congo red in 2 per cent. solution without apparently disturbing in any way the general bodily equilibrium. The same quantity of trypan red has been given without injurious effect. It is of interest to note that the dye when given in such amounts circulates in the blood for several days unchanged, and may be demonstrated by the discoloration of the serum.

Dyes have been injected into human beings only after a thorough test of their toxicity in animals, the guinea-pig and the rabbit having been chiefly used for this purpose. The toxicity of the various diazo dyes varies markedly, as has been pointed out by Evans. However, there does not seem to be any direct relationship between chemical composition and toxicity. The side-chain theory of Ehrlich, which postulated a special affinity on the part of the cells for certain chemical side-chains of the molecule, is not supported by the facts. Slight variations in composition, such as an alteration in the relative positions of two side-chain groups of the naphthalene nucleus, may result in a distinct change in toxicity. The addition of a single sulphonate group to two such preexisting groups in the molecule, a change of no apparent significance (since there may be five of these groups in a nontoxic dye, such as trypan red) may result in an enormous increase in toxicity; this is true of heliotrope 2B as compared with Congo violet. But at the same time the relative positions of the side-chains in the naphthalene group have been changed. Why this change should so completely alter the reaction of the body is not clear. The physiologic basis of these effects is for the most part quite obscure. It is of importance that the same dye, such as trypan blue, may be considerably more toxic for one species, such as the guinea-pig, than for another, such as the rabbit.

The tendency of the body is to rid the blood of this foreign material. A certain amount is taken up by the cells of the tissues, and these cells then undergo a marked discoloration. Such cells belong to the phagocytic group, and have been called "scavenger cells" by Evans. After intravenous injection into human beings of the Congo red or trypan red, the skin may assume a diffuse reddish color, the intensity of which varies with the amount injected. This discoloration gradually fades away. Inflammatory tissues also have a marked tendency to take up the color. In working with experimental arthritis, Cecil has found that trypan blue lodges in large amount in the tissue of infected joints, and Weil has shown that Congo red produced marked discolorations of the necrotic areas of malignant new growths in human beings. We have found that the dye is also excreted into pleural fluids, and is present in mucopurulent exudation from the respiratory tract, as in bronchitic sputum. We have found that the dyes are excreted on the surface of external ulcerated areas, including both ulcerated new growths and benign lesions, such as chronic varicose ulcers. Congo red, for example, when given in amounts of 0.5 gm. intravenously in human beings, appears on the surface of the ulcer in about an hour, and is then continuously demonstrable for several days. The dye certainly has no injurious effect on the ulcer, and has seemed at times to exercise a beneficial influence on the healing.

The excretion of dyes by external ulcers suggested the possibility that ulcers of the gastro-intestinal tract might perhaps act in similar fashion. We have therefore studied gastric ulcers from this standpoint. Congo red, as we have already reported in a short preliminary paper, was found in the stomach contents of a number of patients with gastric ulcer. In these cases it was usually present in very large amounts, so that the filter papers through which the contents were passed showed a heavy red deposit. In a number of cases of gastric carcinoma the same observation was made. Thus the conditions seemed most favorable for the development of a differential diagnostic test for diseases of the stomach. On the other hand, there were some cases both of ulcer and of cancer which failed to give a reaction, while there were also occasional control cases in which neither ulcer nor cancer was present in which the stomach contents showed a small amount of dye.

In trying to account for the latter group, we found that Congo red is excreted in large amounts in the bile, and that the reflux of bile into the stomach may present a serious complication in the utilization of the method as a gastric test. This fact necessitated the study of dyes in relation to their excretion by the liver. Congo red is the only dye of which the excretion in human bile has been directly investigated A patient with a postoperative biliary fistula, but without any evidence of inflammatory conditions in the biliary tract or liver, received 0 5 gm of the Congo red intravenously Within one-half hour the dye appeared in the bile and continued to be excreted by that route for more than twelve hours If dyes were to be used for the diagnosis of gastric conditions, it appeared to us to be essential to utilize such dyes as were not excreted by the bile, in order that this source of error might be excluded The method which we employed to determine whether or not dyes were excreted by the liver was to give an animal an intravenous injection, and then after two or three hours to aspirate the contents of the gallbladder This operation can be carried out on guinea-pigs under ether The laparotomy wound heals well, and the animals ordinarily recover and become available for a second experiment The discoloration of the bile offers immediate evidence of the presence of the dye At times the color of the dye in the bile is somewhat different from that of the original watery solution Thus Bordeaux COV may have a pinkish instead of a lilac color Ordinarily, the addition of a few drops of peroxid alters this to the usual color, thus showing that partial reduction is responsible for the change

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* From the Department of Experimental Medicine, Cornell University Medical College, New York.

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

It was found that dyes could be divided into three classes with reference to their excretion by the liver. These classes, of course, include only such dyes as were not toxic and could therefore be injected intravenously In the first group are the dyes which are excreted by the liver and are present in the bile Among such dyes, in addition to Congo red, may be mentioned neutral red, safranin, methylene blue, Biebrich scarlet, benzo-azurin, and oxamin violet The second group comprises the dyes which do not appear in the bile Such are rosanilin, pyronin, trypan red, orange G, eosin, indigocarmin, azur, and a number of others The third group comprises those dyes which make their appearance in the bile occasionally, but not regularly, when injected in the routine amount of 0 5 c c of a 1 per cent solution, examples of this group are Bordeaux COV, Congo rubin, and azoblue

The chemical or physical basis of these differences is entirely obscure Congo Corinth differs from Congo red only in the substitution of an OH for an NH group, yet the former dye is not excreted by the bile, while the latter is

A series of observations have been made on the excretion of these dyes not only by the liver of normal animals, but of such animals as have received injections of phosphorized oil In the latter the liver undergoes marked fatty degeneration, and whether the animal dies or recovers depends on the dose In such poisoned animals the dyes of the first group are excreted in the bile exactly as in normal animals Those dyes belonging to the second group, which are never excreted by the normal liver, are never excreted by these diseased livers The dyes of the third group, toward which the normal liver exhibits a certain latitude, are always excreted by the diseased organ These observations indicate the likelihood of finding some dye, the presence of which in the bile will always indicate a diseased process in the liver, as yet, however, this object has not been accomplished

For the diagnosis of gastric disease, we have tested some of the dyes in group two, which are never present in the bile The dye which has been most thoroughly studied in this connection is trypan red This dye has certain obvious advantages It is very soluble, is nontoxic on intravenous injection, is excreted promptly and profusely on the surface of external ulcerations, and does not appear in the bile These characteristics seem obviously to determine its availability for the purpose It has been employed in a series of nine cases of organic stomach disease, including ulcer of the duodenum, and ulcer or cancer of the stomach, in which the diagnosis was established with certainty, either by operation or the Roentgen ray In not a single one of these cases has the trypan red ever been found in gastric contents Here, then, is an absolute difference in the behavior of the dye in skin ulcers and in gastro-intestinal ulcers It seems difficult to account for this difference on the basis of any differences in the nature of the two types of ulceration, and we are therefore inclined to the view that chemical conditions might be such as to obscure the presence of the dye, even if actually excreted in the stomach Experiment has indicated that this possibility does, indeed, exist Dilute hydrochloric acid somewhat decolorizes solutions of trypan red when left in contact therewith If hydrogen peroxid is added to the mixture, decolorization is complete and much more rapid, yet hydrogen peroxid alone produces hardly any alteration If we assume that oxidases are present in all the tissues, especially in granulating surfaces, the difference in the coloration between gastric and cutaneous ulcers might conceivably be explained on this ground

Pyronin has been tried out in cases of gastric ulcer, but also without result

Experimentation is now under way in the excretion of these dyes by experimental gastric ulcers in dogs, and it is hoped that this method will throw some light on the problematic conditions which we have encountered in human beings

We desire again to draw attention to the different manner in which the liver behaves toward dyes, excreting some and not others, and to the fact that this function can be modified by disease of the organ, furthermore, to the fact that ulceration of the gastro-intestinal tract appears to act differently as regards the excretion of dyes from ulceration of the skin surface

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ABSTRACT OF DISCUSSION

Dr Arthur D Hirschfelder, Minneapolis This work represents a most ingenious application of a phenomenon which in itself is interesting A few years ago Dr M C Winternitz and I began a series of experiments on pneumonia in rabbits and found, just as the essayists have found that trypan blue and trypan red went almost specifically into the diseased tissues, so that they marked off diseased areas of the lung and would also go into the fibrinous exudate of a pleuritis or a pericardial effusion These dyes were absorbed by fibrin, but entered everywhere into diseased tissue Similar observations were made by Camp and Bell in Minneapolis for other local infections, and we also have been in the habit of using injections of trypan blue to mark off burned areas or areas otherwise injured I think it represents as sure a method as one could desire for the detection of necrotic areas, but the applications that Drs Weil and Cecil have made—to use this for the excretion through ulcerated surfaces—is extremely interesting and, I hope, practical One point, which probably has also occurred in the experience of Drs Cecil and Weil, which struck us in working with trypan blue in general is the variability of the toxicity of the benzidin dyes based on their colloidal state If we allow the trypan blue to stand for a short time the dispersion or suspension of the dye is apparently changed The ordinary suspension or solu tion of trypan blue represents a molecular weight which is about four times the theoretic molecular weight. If allowed to stand definite visible aggregates occur. The longer it stands the greater the toxicity. This is important in the practical application of the dyes of the benzidin group. They must be used with distilled water and very fresh solutions must be used or toxicity will result.

Dr. Robert A. Hatcher, New York: Dr. Weil informed us that the liver of the dog poisoned with phosphorus does not behave toward certain dyes as does the liver of the normal dog; hence we investigated the capacity of such poisoned livers to remove strychnin from the circulation and destroy it. Dogs were given phosphorus and when moribund the liver was excised and perfused with a solution of strychnin. The results were practically identical with those obtained with normal livers.

Dr. Fred I. Lackenbach, San Francisco: Another interesting field of investigation is the use of these dyes as therapeutic agents. There has been some work done with fuchsin in the treatment of tuberculosis of the bladder and kidney and in gonococcus infections. Dr. Vecki published a paper about a year ago on the employment of fuchsin solution in strengths of 0.25 to 1 per cent. for irrigating the bladder and urethra. It is important to use the solutions as fresh as possible and fuchsin of high purity; it is otherwise irritating. While the literature on the subject is not large, it is interesting and should stimulate investigation.

Dr. Otto Raubenheimer, Brooklyn: From a historic standpoint it is interesting that the 'pigmentarii' or color makers, of old Rome have been revived in our present age. In regard to the excretion of dyes I would say that in 1910 a number of samples of urine were brought to me with a bluish cast, and many physicians were puzzled. One woman brought around a pot of urine and some physicians considered it indican, but this is not blue, and indican must be oxidized to develop the blue color. The color was due to the administration of some proprietary pill which was distributed at that time and which contained methylene blue. This urine was left standing three months and then, to my surprise, it was not putrid but was well preserved and, very strange, was colorless. On loosening the cork and shaking it the urine developed a blue color. This may be new to some of the members of the section.

Dr. William Salant, Washington, D. C.: The study of the elimination of dyes is a very good field for the pharmacologist and the medical man. I have been interested in it for some time and have examined a number of water-soluble and fat-soluble dyes with reference to their elimination. I was impressed with the fact that elimination by the liver in animals poisoned with hydrazin was the same as in normal animals. I think, however, some dyes will be found the elimination of which in the bile is different when the liver is normal and after it has undergone pathologic changes. The fact that in inflammatory conditions staining of certain organs with some dyes has been observed, whereas the same organs when normal remain unaffected by such dyes, is, I think, promising, for it may prove of value in the diagnosis of hepatic diseases.

Dr. Russell L. Cecil, New York: As to the possible toxicity of these solutions, we have injected about sixty to seventy patients intravenously and in only one did we get symptoms of toxicity, and this was, I think, because we allowed the solution to get cold. It is true that our solutions must be made up fresh with distilled water, and in using the concentrated solution it is desirable to keep it warm. This patient's temperature rose to 103 F., with chills, but the symptoms passed away in a few hours. As to the therapeutic effect, we tried one case of ulcer of the leg with granulating edges the size of a dollar which had been treated by various methods a year or two, and by constantly injecting the dyes the patient's eyes got very red, but he said he would rather be red than have the ulcer, and we injected time and again. The ulcer improved under the treatment but the patient got restless and in five or six weeks we let him go home. As to the cosmetic effect, in the anemic patients we get a wonderful color which will not rub off.

AN APPARATUS FOR THE STUDY OF THE DISSOCIATION OF OXYHEMOGLOBIN *

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The work of Bohr, Barcroft and others has shown the importance of electrolyte contents, reaction, etc., in connection with the power of hemoglobin to absorb oxygen when exposed to this gas at different pressures. Determinations of the amount absorbed at successive low pressures of oxygen give a characteristic curve which is modified by various changes in the medium in which the hemoglobin is dissolved or suspended, and it seemed possible that the comparison of such curves, made with blood in which the nature of changes in the plasma were known, with others made from normal blood might give a clue as to the abnormality of the plasma. There are many other directions in which such determinations might be useful.

Barcroft's instrument allows a direct comparison between the amount of oxygen absorbed by a cubic centimeter of blood at a low oxygen pressure with that absorbed at the point of saturation. It appears to give no absolute or quantitative result, so that it would be difficult to follow daily changes in the blood, except by comparison with some standard.

With the idea of securing absolute rather than relative figures, the apparatus herein described was planned. It is, as the drawing shows, simply a modification of Van Slyke's apparatus for measuring the combining power of the blood for carbon dioxid. The modification consists essentially in lengthening the stem which is narrowed above and below, and graduating this stem throughout. The narrow parts, above and below the central wide tube, contain each 2 c.c., the graduation being in twentieths of a cubic centimeter. The broader part of the tube contains 48 c.c. graduated in tenths, so that the apparatus from the upper tap to the beginning of the lower narrowed portion contains 50 c.c.

A centimeter scale is fixed close to the glass apparatus, which itself is clamped in such a way as to occupy always the same position. The mercury bulb is supported in a ring which is raised or lowered by a cord that passes over a pulley to wind on a drum which can be turned by hand by the attached wheel. Close to it is fastened another centimeter scale. Since it is difficult to read the level of the mercury in the bulb against the scale, a float is arranged with a needle which plays directly on the scale and is adjusted to indicate the figure which corresponds with that read on the other scale from the level of the mercury in the glass apparatus when the taps are open to the atmospheric pressure.

By filling the apparatus with mercury, closing the upper tap, and lowering the mercury bulb, one may read off the barometric pressure by comparing the levels of mercury read from both scales. When the interior of the tube is wet, the barometric reading is lowered on account of the water vapor. The degree of lowering is practically constant with the small amount of fluid, and the wet barometric reading is used throughout, since all measurements must be made

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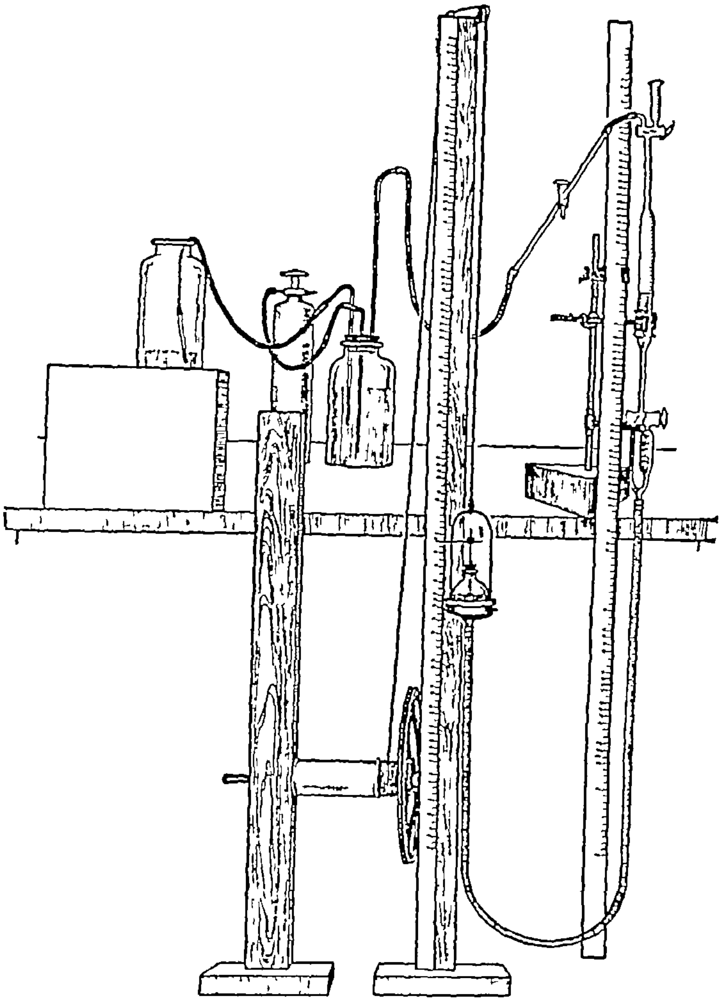
* From the Department of Pathology, Columbia University College of Physicians and Surgeons.

* Read before the Section on Pathology and Physiology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

in the presence of water vapor Doubtless, this is one point which may be criticized, but it is thought that the error is one which admits of correction throughout

To estimate the capacity of hemoglobin to absorb oxygen, defibrinated blood is exposed in the apparatus at a definite temperature, to oxygen at varying pressures below 100 mm of mercury Complete saturation occurs at pressures above 100 mm under almost any circumstances of temperature or change in plasma constitution, so that the characteristic variations are found at pressures below that point The absorbed oxygen is then liberated by the ammonia-ferricyanid method of Haldane, and measured

The whole procedure is carried out in the same apparatus Two c c of blood are placed in the funnel at the top, the whole tube being filled with mercury, and are drawn into the tube by way of the tap No air is allowed to enter and the mercury is lowered to the graduation at 50 c c There is much frothing of the blood, which becomes very dark in color, especially when the apparatus is removed from the clamp and shaken Replaced in the clamp, the mercury is raised and the liberated gases allowed to escape through the funnel This exhaustion is repeated until no more gas is liberated except a minute bubble of about 0 05 c c which is constant and represents water vapor That this removes all free oxygen is readily shown by allowing ammonia and ferricyanid to run in with such exhausted blood, after which there is no further liberation of gas



Apparatus for determination of dissociation of oxyhemoglobin

The exhausted blood is drawn down into the reservoir below the lower tap, and mercury allowed to run up through the other tube by turning the tap quite around until the apparatus is filled Oxygen is now run in through the tube above the upper tap and the mercury lowered to 50 c c This oxygen is expelled by raising the mercury and turning the three-way tap in the tube from the oxygen apparatus, so that it escapes When this tap is again turned, so that oxygen runs into the apparatus, only a small amount is allowed to enter, and the upper tap is closed Then the mercury is lowered to the 50 c c mark, and the comparison of the two levels of mercury as read on the two scales gives the pressure at which the oxygen stands It must be observed that here, too, the differences between the two readings are subtracted from the wet barometric reading One may accept the pressure which comes by chance and which may be 23 or 39 mm of mercury or one may repeat the operation until the reading is exactly 20 or 30 mm of mercury It is a matter of no importance, since all readings are equally useful in constructing the curve, but it may be of interest to compare successive readings at the same pressure of oxygen

The mercury is now further lowered to the lowest mark on the narrow portion of the tube, so that the oxygen is now expanded to 52 c c and is naturally at a different pressure But the original pressure is restored by turning the tap slowly, so as to allow the 2 c c of exhausted blood to float up to the top of the mercury and occupy the extra 2 c c of space All taps are now closed and, since 2 c c of exhausted blood are exposed to 50 c c of oxygen at, say, 20 mm pressure, the apparatus is removed from the clamp and shaken This shaking is done at a constant temperature, 37 C, the apparatus being submerged in a large waterbath After ten or fifteen minutes' vigorous shaking, it is placed once more in the clamp, and by raising the mercury the remaining oxygen is driven out through the funnel at the top This process may be repeated, but it does not seem to be necessary to repeat it

After all the oxygen has been expelled, 5 drops of octyl alcohol and 6 c c of ammonia (a dilute solution made by adding 1 c c of strong ammonia to 200 c c of distilled water), together with a little saponin to lake the blood, are drawn into the funnel This is followed by 1 c c of fresh saturated solution of potassium ferricyanid The mercury is lowered to the bottom of the tube and the whole shaken When all the gas has been liberated, the fluid is drawn down into the reservoir and the tap turned round, so that the mercury may run up through the other tube, driving the gas up into the narrow portion at the top The mercury in the bulb is leveled with that in this tube and the amount of gas read off When this is recorded, similar estimations are made for other pressures of oxygen

The method seems reliable and gives readings comparable with those of Barcroft and Bohr There are many small technical difficulties which are overcome by practice, especially in the manipulation of the taps, so that blood shall not be allowed to escape or to come into contact with the air after its exposures to oxygen It is possible to avoid this fairly well by placing a little petrolatum in the bottom of the funnel, but it must be remembered that petrolatum will dissolve and allow the passage of oxygen rather quickly Corrections are made for temperature, pressure and water vapor

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Man and Freedom of Will—Man loves to act as he likes, and not necessarily as reason and self-interest would have him do—Dostoievsky

EDEBOHLS OPERATION IN NEPHRITIS IN CHILDREN*

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Edebohls in reviewing the clinical records of the patients on whom he had performed nephropexy, found that six of them had also had chronic nephritis The complete and permanent disappearance of albumin and casts from the urine and the restoration to perfect and enduring health of three of the first five patients led him to advise bilateral nephropexy in the sixth patient, a sufferer from chronic Bright s disease complicated with movable kidneys, mainly with the object of favorably influencing the chronic nephritis This operation performed Jan 10 1898, constituted the first operation ever undertaken on the kidneys with the deliberate purpose of curing chronic Bright s disease The paper in which he reported this case and stated his views was published in 1899[1]

In May, 1901, Edebohls[2] stated that he was prepared to go a step farther and to propose surgical intervention for the purpose of attempting a cure of chronic nephritis whether the affected kidney was movable or in place When the kidney was movable, he advised nephropexy with denudation of the kidney, and when it was fixed denudation of the kidney of its capsule proper, thus affording free opportunity for the formation of new vascular connections on a large scale between the blood vessels of the kidney and those of its fatty capsule

In 1901, he published an article[3] in which he reported eighteen cases of chronic Bright's disease in women between the ages of 19 and 45 years In some cases, the disease was unilateral in others, bilateral In most instances, it was interstitial in type In his early operations, he did not excise the whole capsule, in his later operations, he did He states that excision of the renal capsule proper accurately defines the operation Eight of nine patients, operated on a year or more before, were cured, while the outcome in the other patients was encouraging He believed that these results proved that chronic Bright's disease is curable by operation He stated that the first beneficial effects of the operation, which are shown by an increase in the flow of urine, do not appear before the tenth day

He explained the good results of the operation on the basis of the conditions found at a second operation on a patient in whom nephropexy had been performed Strong connective tissue adhesions or bands attached the kidney to its surroundings These bands contained very large and numerous blood vessels running between the kidney and the adjacent tissues There was a large excess of newly formed arteries over newly formed veins In all the arteries the direction of the blood stream was toward the kidney He concluded, therefore, that "arterial hyperemization of the kidney is the basic factor underlying the subsequent changes which result in the cure or improvement of chronic Bright's disease after operation "

Edebohls believed that the increased and adequately maintained blood supply to the kidney established by the operation leads to gradual absorption of the interstitial or intertubular inflammatory products and exudates, thus freeing the tubules and glomeruli from external compression, constriction and distortion, and permitting the reestablishment in them of a normal circulation The result of this improved circulation in and between the tubules and glomeruli is the regenerative production of new epithelium capable of carrying on the secretory function

He stated that it is self-evident from the above considerations that the cure of chronic Bright's disease is initiated only by the operation, and that it is thereafter necessarily gradual and progressive It is not a question of the simple relief of renal tension, the beneficial effects of which in acute conditions of the kidneys were described by Harrison in 1896 In these acute cases, the tight fit of the capsule proper is manifest and the kidney bulges at once through an incision or puncture made through the capsule In chronic Bright s disease, on the contrary, the capsule proper, although it may be abnormally adherent to the kidney, never compresses the latter and may rest loosely on it Moreover, on cutting the capsule proper, the edges of the incision do not gape

Edebohls stated that the object of renal decapsulation is to create new and liberal supplies of arterial blood to the diseased kidneys Both the denuded kidney and its fatty capsule are most liberally supplied with blood vessels Both are brought together by the operation over the whole extent of the surface of the kidney The necessary result must be the formation, on the most extensive scale, of new vascular connections between the kidney and the fatty capsule about it The fibrous capsule proper forms an almost impenetrable barrier to the passage of blood vessels between the kidney and its fatty capsule He also said that it must be remembered that renal decapsulation is not directly and forthwith curative of chronic Bright's disease, and that it only leads to a cure or improvement of the disease by establishing circulatory conditions essential to such cure or improvement The attainment of permanent cure will necessarily require time

In 1904, he admitted that the experimental evidence as to the formation of new vessels was conflicting He asserted, however, that the results obtained were unimportant and inapplicable, because all the experimental work had been done on animals with normal kidneys or with acute nephritis, and no studies were made on animals with chronic nephritis, which condition he was describing

He said that Dr Larkin had made a very complete and careful examination of two kidneys of the same subject, four months after decapsulation, and was able to establish clearly the existence of an abundant vascularization of the new capsules, of direct connection between the vessels of the new capsules and the perinephritic fat, and of direct penetration of the newly formed vessels of the new capsule along connective tissue paths into the substance of the kidney

In 1904, Edebohls[4] summed up his results in seventy-two patients operated on before Jan 1, 1904

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* Read before the Section on Diseases of Children at the Sixty Eighth Annual Session of the American Medical Association New York June 1917

* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author s reprints A copy of the latter will be sent by the author on receipt of a stamped addressed envelope

[1] Edebohls Med News 1899 **74**, 481

[2] Edebohls Med. Rec. New York, 1901 **59**, 690

[3] Edebohls The Cure of Chronic Bright s Disease by Operation Med Rec. New York 1901 **60**, 961

[4] Edebohls The Surgical [illegible] of Bri[illegible]ase, New York, F L. Lisiecki 1904

The time elapsing after operation varied from eight months to eleven years and eight months, the average being two years and ten months

RESULTS OF OPERATIONS IN FIRST SERIES OF CASES

Three patients had disappeared from observation

Seven had died within two weeks

Twenty-two had died later, nine from causes not related to chronic nephritis, thirteen could be fairly ascribed to chronic nephritis Average duration of life was thirteen months, extremes fifteen days to eight years after operation

Forty were living, of these, three were unimproved, twenty improved and seventeen cured The duration since the operation in the cured cases varied from sixteen months to eleven years and eight months, the average being four years

Only one of these patients was a child, a girl of 4½ years The diagnosis was chronic parenchymatous nephritis She was well two and one-half years after operation

In June, 1908, Dr Edebohls made his final report on 102 patients operated on up to June, 1906[5] He died Aug 8, 1908

RESULTS IN SECOND SERIES OF OPERATIONS

Three patients had disappeared from observation

Ten had died within two weeks

Thirty-nine patients had died later, ten from causes not related to chronic nephritis, twenty-nine from chronic nephritis Average duration of life after operation, seventeen months, extremes, fifteen days and eight years

Fifty patients were living, of these, six were unimproved, eleven improved and thirty-three cured Average duration after operation five years, extremes fifteen months to fourteen years and ten months

Average length of time after operation at which urine became normal, interstitial nephritis six months, parenchymatous nephritis fourteen months

REVIEW OF LITERATURE REGARDING EDEBOHLS' OPERATION

Edebohls' views and statements attracted a great deal of attention when they were advanced Van Cott[6] attacked them severely and called attention to the fact, which is unquestionably true, that the blood supply of the kidney comes from the renal artery and that these arteries are terminal arteries, the blood supply from the capsule being insignificant He also explained that the renal tissue once destroyed does not regenerate The following are quotations from his article

> On teleological grounds, the renal circulation cannot be restored by decapsulation and substitution of the capsula adiposa No amount of restoration of renal circulation would restore the integrity of the cortex Chronic nephritis, being a local expression of a general disease, will yield only to such treatment as is calculated to cure the general disease, and here there can be hope only of arresting the progress of the renal degeneration The diseased portion of the organ will never regenerate

His arguments as to the circulation of the kidney and to lack of regeneration of kidney tissue seem incontrovertible

Many experiments were undertaken in all countries on animals in relation to the formation of a new capsule with a new blood supply Most of the experiments demonstrated that a new capsule is formed very shortly, usually being complete in a few weeks, and that this capsule is thicker and denser than the normal capsule The experiments were all done on normal animals or on animals with an induced acute nephritis None of them were studied over long periods of time, a few months being the limit Most of the observers, outside of Italy, came to the conclusion that the new capsule contains less rather than more blood vessels than the old Among these writers may be mentioned Johnson,[7] Emerson,[8] Hall and Herxheimer,[9] Ehrhardt,[10] Gifford[11] and Stern[12] They were unable to find evidences of anastomosis between the new capsular vessels and the other vessels of the kidneys

Asakura[13] was inclined to favor Edebohls' contention and to believe that the circulation may be improved in chronic conditions He advanced no evidence, however, to prove this Zaaiger[14] concluded, from his second series of experiments, that the new capsule had a higher functional worth than the normal, especially on the hilum side The venous anastomosis was greater than the arterial He thinks that it is possible that these results may apply to decapsulation in man

Martini[15] called attention to the fact that a considerable proportion of the circulation in the kidneys comes through the capsules and the anastomoses between the capsular vessels and the others He believed it theoretically possible, therefore, to establish the circulation through the capsule He believed that the new capsule was formed from the interstitial connective tissue and the blood vessels of the kidneys Other writers agree with him Still other students believe that the capsule is formed from the outside tissues Martini found a new formation of vessels in the new capsule and that the new collateral blood supply was much richer than the original and the new capsule more vascular He showed by experiments that, if decapsulation was accomplished some time previously, those dogs would survive operations on the renal vessels while other dogs that had not had their kidneys decapsulated would not recover

Siter,[16] experimenting on cats and dogs, wrapped the kidney in the omentum He found that the kidneys increased in size, that a new capsule was formed immediately and a new collateral circulation established in ten days This new collateral circulation was sufficient to allow the kidney to functionate properly when the renal blood vessels were tied off The kidneys remained much enlarged Such a formation of anastomoses between the new vessels of the capsule and the other kidney vessels is, however, according to physiologists and pathologists, impossible

Murard[17] writing in 1913, called attention to the conflicting results of previous experiments and gave a few of his own He reviewed the work of other writers, especially in relation to experiments with injections, either through the renal arteries or into the aorta with the renal artery tied Thelemann[18] injected the renal artery and found no injection of the capsular vessels Stern[19] found a little color in a few of the extrarenal vessels, but thought that the communications were slight and unimportant Stursburg,[20] on the other hand found that injections into the aorta, with the renal artery tied penetrated deeply into the kidneys, even to the papillae Murard concluded that, from the standpoint of efficient circulation decapsulation is a useless operation

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[5] Edebohls Tr Sect Surg and Anat, A M A, 1908, p 707

[6] Van Cott Renal capsulation from the Pathologist's Point of View, Med News, 1904, 4, 970

[7] Johnson Ann Surg, 1903, **37**, 592

[8] Emerson Tr Assn Am Phys, 1903, **18**, 192

[9] Hall and Herxheimer Brit Med Jour, 1904, **1**, 819

[10] Ehrhardt Mitt a d Grenzgeb d Med u Chir, 1904, **13**, 281

[11] Gifford Boston Med and Surg Jour, 1904, **151**, 37

[12] Stern Mitt a d Grenzgeb d Med u Chir, 1905, **14**, 601

[13] Asakura Mitt a d Grenzgeb d Med u Chir, 1903, **12**, 602

[14] Zaaiger Mitt a d Grenzgeb d Med u Chir, 1906, **15**, 421

[15] Martini Arch f klin Chir, 1906, **78**, 619

[16] Siter Tr Am Assn Gen Urin Surg, 1913, **8**, 293

[17] Murard Lyon Chir, 1913, **10**, 347

[18] Thelemann Deutsch med Wchnschr, 1904, **30**, 538

[19] Stern Mitt. a d Grenzgeb d Med u Chir, 1905, **14**, 601

[20] Stursburg Mitt a d Grenzgeb d Med u Chir, 1903, **12**, 625

PATHOLOGIC REPORTS

These are very few being limited, as far as I found in the references which I looked up and which seemed likely to contain such reports to those reported by Edebohls himself and three other writers Boyd and Beattie's[21] patient died four months after the decapsulation of one kidney The necropsy disclosed a dense new capsule The capsule was vascular and contained vessels which appeared to anastomose with the vessels in the superficial part of the cortex of the kidney These writers state however, that "it is doubtful whether the formation of these new vessels could more than compensate for the normal communication between the renal and perirenal vessels, which was ruptured by the operation of decapsulation " The new capsule formation was accompanied by prolongations of new fibrous tissue into the cortex of the kidney The interstitial changes present before the operation were thus exaggerated

Gatti[22] performed double decapsulation in an adult patient who died twenty months later from nephritis At necropsy the capsule was found to be thicker than normal fibrous, compact and with few blood vessels

Bonnet[23] reports the necropsy on an adult patient who died twenty-eight and one-half months after a double decapsulation There was a new, thick capsule which was but little vascularized There were fibrous prolongations into the kidneys, contraction of which had tended to increase the process No new vessels were seen passing into the kidney

EDEBOHLS' OPERATION IN ACUTE NEPHRITIS IN CHILDHOOD

With the exception of a few who had puerperal eclampsia, Dr Edebohls' patients all had some form of chronic nephritis Harrison however, had begun to operate, in one way or another on patients with acute nephritis before Edebohls did his first operation for chronic nephritis Harrison[24] reported, in 1896, three cases cured by operation, one of acute nephritis caused by scarlet fever, another following exposure to cold and damp, and one of subacute nephritis, secondary to influenza He did not decapsulate the kidneys in these cases, however, but either incised or punctured the kidney or its capsule, or both He believed that the good results were attributable to the relief of renal tension In a second article,[25] this writer proposed incision in acute suppression of urine and in acute nephritis with tenderness on pressure over the kidneys and slow disappearance of casts and albumin He later reported[26] three more cases in which he incised the kidneys for acute conditions in order to relieve tension It is noteworthy that Harrison's object in incising the kidney was to relieve tension in acute conditions, while Edebohls proposed to promote the formation of a new circulation in the kidney by the removal of the capsule

I do not know how generally Harrison's advice as to incising the kidneys in acute nephritis was followed, but, from a rather superficial review of the literature, I am inclined to think that little attention was paid to his suggestions and they were soon forgotten Edebohls' work on the decapsulation of the kidneys in chronic nephritis naturally called attention to the possibility of performing this operation in acute nephritis for the relief of tension, instead of incising the kidneys, as advised by Harrison I have found three cases described in which decapsulation was performed in acute nephritis for the relief of tension, and do not doubt that I may have missed a few other reports

REPORT OF CASES

Case 1[27]—Boy, aged 5 years, had scarlet fever, with anuria for four days The operation consisted of decapsulation and puncture of kidneys The kidneys were not large and did not protrude when capsule was split Patient began to pass urine almost at once and recovery was uneventful

Case 2[28]—Boy aged 12 years, had scarlet fever with convulsion and followed by blindness and deafness There was almost complete suppression of urine, which revealed presence of blood and casts

The kidneys were very large with a capsule not adherent, so that the kidney bulged through the slit Patient passed 24 ounces of urine in 24 hours after operation Sight and hearing returned on third day, and he left the hospital on the eighteenth day feeling well

No note was made as to condition of urine

Case 3[29]—In a girl, aged 6 years, acute symptoms continued for a few days with anuria convulsions and uremia Urine contained much albumin but no data were recorded concerning sediment The operation of decapsulation and incision of right kidney was made The size of the kidney was not noted but it bulged through wound and microscopically revealed swelling and exudation in glomeruli and fatty degeneration of epithelium of the convoluted tubules Patient began to pass urine in a few hours and symptoms of uremia ceased Five weeks later the patient was symptomatically well and urine contained a little albumin but no renal elements

The kidneys of two of my own patients who had acute nephritis, suppression of urine and severe symptoms of uremia were decapsulated The histories of these cases are as follows

Case 4—Boy, aged 13 years, had an attack of tonsillitis, Feb 10, 1917 which cleared up rapidly He was nauseated February 17 and February 20 the urine was scanty, smoky and contained 1 5 per cent of albumin The sediment contained large amounts of both normal and abnormal blood, many cells and many hyaline granular, epithelial and blood casts He had a slightly elevated and irregular temperature Under careful treatment, the urine increased from 3 ounces to 42 ounces March 7, and the character of the urine also improved, with the amount of albumin going down to 0 1 per cent At this time, however, although passing urine freely, the patient began to be a little edematous and the urine again became bloody The amount of urine gradually diminished and the amount of albumin increased In spite of cutting down the fluid intake and moving the bowels very thoroughly with salts, he began to vomit and the edema increased March 22 he passed 10 ounces of urine and had fourteen loose stools At 6 30 a m, March 23, he had a convulsion In spite of free catharsis and hot packs, the convulsions continued and there was almost complete suppression of urine, only 6 ounces being passed from that time until the kidneys were decapsulated at 9 p m by Dr James S Stone The kidneys were distinctly enlarged but were more edematous than congested They bulged somewhat when the capsule was split and the lack of bleeding was very marked Their appearance was more like that of large, white kidneys than of acute nephritis, and there was practically no bleeding from the organ, the denuded surface not oozing at all There was, however, considerable edema about the kidneys and in all the tissues of the back The patient continued in convulsions for an hour after the operation, then quieted down and died at 11 15 p m He did not begin to pass urine at all

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[22] Gatti Arch f klin Chir 1908 **87** 658
[23] Bonnet Arch. gen. de med 1905 **1**, 660
[24] Harrison Lancet, London 1896 **1**, 18
[25] Harrison Brit. Med. Jour, 1896 **2**, 1126
[26] Harrison Brit. Med Jour 1901 **2**, 1125
[27] Schmidt Deutsch Ztschr f Chir 1905 **78**, 296
[28] Harding G F Decapsulation of Both Kidneys for Acute Nephritis Following Scarlet Fever The Journal A M A July 10, 1909, p 117
[29] Gümbel Deutsch med Wchnschr, 1911, **37**, 594

Case 5—Boy, aged 10 years, had an acute attack of tonsillitis, Feb 24, 1916 A week later it was noticed that his face was swollen and that the urine was dark in color and diminished in amount Since then the swelling had become general and he vomited practically everything taken He was admitted to the Children's Hospital, March 17 Physical examination revealed moderate, general edema and a small amount of ascites He passed 17 ounces of urine during the next twenty-four hours, and the urine was reddish-brown and contained a trace of albumin The sediment contained many leukocytes, a moderate number of red corpuscles, and a considerable number of hyaline and blood casts During the next twenty-four hours he became stupid, had headache, and passed no urine at all The systolic blood pressure was 160 and the diastolic 104 A double decapsulation was performed, March 19, by Dr C S Mixter The kidneys were much enlarged, slightly paler than normal, bulged through the incision and the capsule was stripped off easily The patient passed 8 ounces of urine during the night after the operation The amount of urine steadily increased, the blood pressure gradually diminished, and beginning March 22, the patient felt well The phenolsulphonephthalein test, made March 29, was 71 per cent It had not been done before the operation April 9, the systolic blood pressure was 90 and the diastolic, 60 At this time the patient was receiving 36 ounces of fluid and passing 27 ounces of urine daily, which contained a slight trace of albumin, a few casts, but no blood

The patient was discharged from the hospital, May 3, in good physical condition The urine then contained a faint trace of albumin and the sediment showed a few hyaline and granular casts His urine continued to show a trace of albumin for two months, although no casts or renal elements were to be found in the sediment No albumin was present in the urine after this time, although it was repeatedly examined When last examined in April, 1917, more than a year after the operation, he was perfectly well and his urine was normal The operation in this case undoubtedly saved his life and gave Nature the opportunity to heal the acute condition in the kidney

The results of decapsulation of the kidneys in these acute cases are certainly most encouraging It seems reasonable to believe that all of these children would have died in a few hours, if the operation had not been performed If this is true, it is evident that the operation saved the lives of four of them, at least for the time being Except in the case in my own practice, there are no data on record as to whether recovery was complete In this instance, the boy, at the expiration of a year, is not only symptomatically well, but his urine is normal and has been for some time

The explanation of the good results obtained by decapsulation of the kidneys in nephritis with suppression of the urine and symptoms of uremia is plain Under these circumstances, the kidneys are in most instances engorged with blood and as the result, become enlarged The capsule stretches to a certain extent, but, after a time, further distention becomes impossible and the circulation is then so much impeded that the excretion of urine is impossible The tension of the capsule and the compression of the kidney are shown by the manner in which the capsule splits apart and the kidney bulges through the wound, when the capsule is incised The relief of the tension afforded by the decapsulation results in a diminution of the engorgement of the kidneys, an improvement in the circulation and, in favorable cases, the restoration of the excretory function It is possible that simple incision of the capsule might be as effectual as decapsulation It does not seem likely, however, because decapsulation should relieve the tension more completely than simple incision It is possible that the manipulation of the kidney, which necessarily takes place during the operation, may be beneficial in relieving the congestion and starting up the excretion

Decapsulation of the kidneys in acute nephritis does not remove the cause of the disease or affect in any way the essential pathologic process in the kidneys It merely relieves the extreme congestion, which is in many cases the cause of the threatening symptoms, and, except for this, leaves the kidneys as they were before the operation Hence, the chances of death, of complete recovery or of the development of chronic nephritis are the same as in other cases of acute nephritis in which symptoms due to extreme congestion have not developed Decapsulation of the kidneys should be undertaken in acute nephritis, therefore, only in those cases in which there is a marked diminution in the amount of urine and symptoms of intoxication are developing Under these conditions it is not infrequently a life saving operation It seems only reasonable, therefore, to give every patent the chance which operative treatment affords

EDEBOHLS' OPERATION IN CHRONIC NEPHRITIS IN CHILDHOOD

All of Edebohls' patients, with one exception, a girl, 4½ years old, were adults In a fairly careful search through the literature, I have been able to find nineteen cases of subacute and chronic nephritis, including Edebohls' own case, in which decapsulation of the kidneys has been done

[The abstracts of these cases are omitted because of lack of space]

SUMMARY OF NINETEEN CASES OF SUBACUTE OR CHRONIC NEPHRITIS IN WHICH DECAPSULATION OF THE KIDNEYS WAS PERFORMED

Dead Four patients died after 5, 6, 15 and 18 days

Cured Three patients seen last after 4 months, 6 months and 9 years

Cured, but recurrence One patient well and urine normal for 2 years, recurrence, with second operation and death in six weeks

Not improved Two patients living after 5 weeks and 6 months

Improved Two First patient better for one year, but acute excerbation and death in two weeks, second, improved, but died of bronchopneumonia after four months

Symptomatically well, but urine containing albumin and casts Seven patients, after 4½ months, 6 months, 8 months, 10 months, 1 year, 1 year, and 6 years

I have had decapsulation of the kidneys performed in four cases of chronic nephritis of the parenchymatous type The histories of these cases are as follows

Case 24—A boy had acute nephritis at 3 years of age as the result of tonsillitis He was treated in the Children's Hospital at this time and was discharged after five weeks symptomatically well The urine contained no albumin, but the sediment showed a few hyaline and fine granular casts He came to the outpatient department at intervals for various slight symptoms during the next three years His general health was good The urine was examined three times during this period It did not contain albumin The sediment was not examined Three days before his entrance to the Children's Hospital, Aug 7, 1915, when 6 years old, his face became puffy and he was nauseated On admission there was marked edema of the face, moderate edema of the lower back, and slight shifting dulness in the abdomen The urine contained a large trace of albumin and many hyaline and granular casts The phenolsulphonephthalein test showed an excretion of 62 per cent in two hours The systolic blood pressure was 110, the diastolic 85 In spite of careful treatment the patient became worse The ascites and edema increased and he failed rapidly in general condition but showed no symptoms of uremia The urine was diminished in amount and continued to contain a large amount of albumin and many hyaline and granular casts The phenolsulphonephthalein excretion was however somewhat better being 71 per cent Decapsulation of the kidneys was performed by Dr Charles S Mixter Oct 9 1915 The kidneys were slightly enlarged and of about normal color not the color of the typical white kidney The capsules stripped off easily During the first week after the operation the edema and ascites increased enormously and he passed only one half as much urine as he received of liquid At the end of a week he had a severe convulsion and was bled and purged Soon after this however he began to improve and by the middle of November had no edema and but little ascites He was eating well had good color and was much improved in every way His urine contained the slightest possible trace of albumin and a rare hyaline cast The phenolsulphonephthalein excretion in two hours was 64 per cent., while the systolic blood pressure was 120 and the diastolic 70

He continued to improve so that by the middle of December he looked and acted perfectly normal The urine contained no albumin and no sediment The salt and urea excretion were found to be normal He has been symptomatically well since that time although the urine at times contained a very slight trace of albumin and an occasional cast up to Feb 1916 Since then the urine on repeated examinations has shown nothing abnormal He was last seen about April 1 1917 The systolic blood pressure in January 1917, was 90 and the diastolic 55

Judging from the history and the condition of the kidneys found at operation this boy probably had an acute exacerbation of a chronic nephritis He would have almost certainly died in a few weeks or months without an operation He is now well and has had a normal urine for eight months

Case 25.—A girl aged 5½ years entered the Children's Hospital July 13 1915 She had had tonsillitis two months before She was admitted to the hospital because of a severe purpura of nine days duration She had bloody stools and joint symptoms in addition to a hemorrhagic eruption She also had endocarditis and myocarditis The urine began to contain blood and casts July 26 Transfusion was done, August 3 This relieved the general purpuric condition but the urine continued to contain from a slight trace to a trace of albumin a moderate number of red blood corpuscles and many granular casts The systolic blood pressure, Aug 9 1915, was 140, the diastolic 90 The phenolsulphonephthalein excretion in September was only 33 per cent and there was considerable interference with the salt and nitrogen excretion The phenolsulphonephthalein excretion in November was 60 per cent, but there was no improvement in the excretion of salt and nitrogen She was sent home Dec 8 1915 At this time the systolic pressure was 125 and the diastolic 78

She returned to the hospital March 22, 1916 having shown no improvement at home She was edematous, extremely pale was vomiting, and the urine contained a large trace of albumin, many granular casts and a little blood She was in unsatisfactory condition and operation on the kidneys was delayed until it was decided that her heart would bear the strain of the operation Her systolic blood pressure at that time was 104 and the diastolic, 60 The phenolsulphonephthalein excretion was 44 per cent. The urine showed an almost complete fixation of gravity between 1 005 and 1 008

Decapsulation of the right kidney was performed, May 4 1916 by Dr Charles S Mixter The kidney was large and pale and the capsule was easily stripped off The left kidney was nothing but an atrophied, soft mass looking very little like a kidney Nothing was done to it, as apparently most of this kidney was destroyed She was very weak for a number of days*after the operation and there was at first no important change one way or the other Her urine about a month after the operation contained a distinct trace of albumin, while the sediment showed many red blood corpuscles and an occasional hyaline and granular cast From this time, her general condition steadily improved so that when seen May 6, 1917, she looked and acted perfectly well She was well nourished, color was good and there was no edema Her urine then showed a large trace of albumin The sediment contained leukocytes and many hyaline and granular casts, but no blood The phenolsulphonephthalein excretion in two hours was only 25 per cent The urine still showed a marked fixation of gravity The level, however, was much higher, being between 1 017 and 1 020

This girl was changed by the operation from a helpless, bedridden invalid to a normal looking and feeling child She would probably have lived but a short time without the operation She is now one year after the operation, symptomatically well She is not of course, cured and will sooner or later die of her disease

Case 26.—A girl aged 10 years, had had chickenpox but no other contagious disease Her tonsils had been removed at 7 years because of their large size not because of tonsillitis Her parents had noticed for a year that she tired easily and had lost color She had occasional headaches but otherwise seemed well Early in March 1915 her physician, who was visiting another member of the family noticed that her face was puffy and asked for some of the urine This he found to contain albumin I saw her first Sept 24 1915 During this period she had been on a careful diet and had improved in general health She had no headaches, but was always somewhat edematous The urine was passed freely and usually contained about 0 25 per cent of albumin and had a specific gravity of from 1 010 to 1 012 The sediment showed leukocytes and red corpuscles with some hyaline casts and a few fatty casts The sediment had never contained tubercle bacilli She was a little pale but did not look or act sick The systolic blood pressure was 108

Dr Edward Reynolds decapsulated the kidneys, Sept 29 1915 Both kidneys were large soft and apparently fatty degenerated and the capsule was not adherent The right kidney was split to determine if there was any local trouble in the pelvis The left kidney was not split but the appearance was the same She stood the operation well and was out of bed in three weeks The urine continued to contain from 0 125 to 0 25 per cent of albumin but had very little sediment, which showed an occasional cast and red blood cell Her general condition since the operation has been better than before She has had no headaches but at times has had some nausea but no edema. She has gained in weight and in height The urine has continued to contain albumin, occasional casts being found, April 2, 1917, it was pale, acid, of a specific gravity of 1 010 and contained 0 125 per cent of albumin The sediment showed many squamous cells and a few leukocytes some large and small round cells, an occasional red corpuscle and rarely a hyaline cast

After a year and a half she is better than before the operation and apparently has some years of life ahead of her, whereas it seemed before the operation that she had but a few months to live

Case 27.—A boy, aged 9 years, had measles and whooping cough at 5 years His tonsils and adenoids were removed when he was 7½ years old He had had a discharge from one ear for some time and had had bad teeth for a long time A month before he entered the Children's Hospital, his mother noticed that his scrotum was swollen He was put on a careful diet and improved up to two days before entrance to the hospital, when he became very edematous and began to vomit His eyesight also began to fail

He was admitted June 23 1916 There was marked general edema, the teeth were bad, ascites was present. The systolic blood pressure was 106 the diastolic, 70 The urine was smoky, acid in reaction, of a specific gravity of 1 018 and contained a large trace of albumin The sediment showed many red corpuscles and an occasional hyaline cast. Under treatment the patient passed considerable urine and the edema diminished From that time his condition varied, at times being edematous sometimes he passed urine rather freely

The urine always contained a considerable amount of albumin, red corpuscles and hyaline casts, and as there was no permanent improvement, decapsulation of the kidneys was decided on

Decapsulation of the kidneys was performed, Sept 15, 1916, by Dr Charles S Mixter The left kidney was found to be twice the normal size, soft, flabby and white The capsule was incised and stripped back from the kidney It loosened readily On the right side, the muscles and fascia over the right loin were found to be bound down with old inflammatory tissue The peritoneum was greatly thickened, and the lower pole of the kidney was adherent to the inflammatory mass The inflammation arose probably from within the abdomen as the result of retrocecal appendicitis and had involved the kidney capsule As it was found impossible to deliver the kidney into the wound, the capsule was incised and stripped back with the kidney in position The right kidney was of normal size, soft, flabby and white There was little or no improvement after the operation, the ascites increased rapidly, necessitating frequent tapping, the urine was diminished in amount, the blood pressure went up to 120 during the next month At this time the phenolsulphonephthalein excretion was less than 10 per cent in two hours and the urine contained a trace of albumin and hyaline and granular casts

After leaving the hospital the patient had to be tapped frequently for a number of months, but early in May was able to return to school, having had no ascites for some time The patient was not again examined, but judging from his mother's description, although he felt much better, yet he was not well The urine, obtained May 20, 1917, was slightly alkaline, clear, straw-colored, and contained a large amount of albumin There was no macroscopic sediment on standing over night The centrifugalized sediment showed epithelial cells, many hyaline, a few fine granular and a rare waxy cast, with an occasional red cell

In this instance, it seems fair to assume that the boy was somewhat benefited by the operation, although no good effects were seen for some time He probably would not have been alive and going to school in May, 1917, if the operation had not been done His condition is, however, bad and he is not likely to live many months

COMMENT

It is very hard to understand how decapsulation of the kidneys can be of any benefit in chronic nephritis, either in childhood or in adult life Nevertheless, it apparently does do good, at any rate in childhood, in a not inconsiderable number of cases The good which it does cannot be due to the relief of tension and congestion, as in acute nephritis The facts we know regarding the physiology and pathology of the kidneys, as well as the results of most experiments on animals, show that the improvement cannot be due to the establishment of a new circulation from the outside of the kidney In lieu of a better explanation, it may be that the improvement is the result of changes in the circulation or functioning of the kidneys, initiated by the handling of the kidneys at the time of the operation

However that may be, the results of decapsulation of the kidneys in these twenty-three cases are certainly encouraging All of them were going from bad to worse under medical treatment Humanly speaking, all the patients would have died in a short time Apparently as the result of the operation, two patients have been permanently cured, one of them being well and with a normal urine after nine years and another after eight months Another was well for two years and then died of an acute nephritis in no way connected with the previous illness Two others were well as long as they were under observation, but the time was too short to consider them cured Nine others have been so much improved by the operation, or at any rate the improvement began immediately after the operation, that they have been symptomatically well for months or years instead of being chronic invalids, as they were before the operation These patients have not, of course, been cured, and will certainly die at some time of their disease Nevertheless, the addition of months or years of apparent health seems to amply justify the operation in these cases

CONCLUSIONS

Edebohls' operation is of much value in properly selected cases of nephritis in childhood It may save life and result in permanent cure in acute nephritis No child ill with acute nephritis should be allowed to die, therefore, without giving it the advantage of the chance afforded by this operation It may prolong life for considerable periods in a not inconsiderable number of cases of chronic nephritis, and may possibly, in rare instances, result in cure It should, therefore, always be considered in all cases of chronic nephritis in childhood which are not responding reasonably well under medical treatment

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ABSTRACT OF DISCUSSION

Dr. J S Wall, Washington, D C These kidney cases resemble cardiac cases, in that the patients leave the hospital and come back in two or three months with renal decompensation They get better, go away, and come back in a very few months with another renal decompensation I think the proof of the pudding is always in the eating, notwithstanding what the physiologists and pathologists tell us

It is a striking thing that the puerile kidney withstands the attack of so many affections We see this in the way it gets rid of uric acid deposits It does not succumb to septic nephritis, but gets pyelitis, from which the child usually recovers, but from which an adult might not This same resistance is only possessed, perhaps, by pregnant women, who can recover from a septic pyelitis

We have some hope in an operation of this sort, because the kidney is growing, it is developing I think we should determine some sort of criteria by which we might judge when the Edebohl operation is to be selected and when discarded In a case I have in mind, the child's urine was full of casts He was most edematous He was admitted to the hospital in June with extreme anasarca The urine contained much albumin The capsule was removed, the operation only taking twenty minutes The next few days were very stormy Since that time he has much improved, and I hope in a future report to be able to add him to Dr Morse's twenty cases

Dr John Lovett Morse, Boston I want to emphasize the difference in the indications for decapsulation in acute and chronic nephritis In the acute cases, the operation is done to relieve congestion temporarily, and if the patient can be tided over a few hours or a day or two he has the same chance which every patient with an acute case has In chronic nephritis, there seems to be no reason for doing the operation, except that experience has shown that a certain number are benefited, and occasionally one is cured In most cases, I think, life is prolonged

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First Printed American Pharmacopeia —The earliest American pharmacopeia to be printed was that prepared for use of the Continental Army by Dr William Brown of Virginia, who succeeded Rush as physician-general of the Middle Department (1778-1780) It was issued from the military hospital at Lititz, Lancaster County, Pa, and appeared anonymously as a Latin booklet of thirty-two pages in 1778—Lieut-Col C C McCulloch, Jr, U S Army The Scientific and Administrative Achievement of the Medical Corps of the United States Army, *Scientific Monthly*

OCCURRENCE OF TUBERCLE BACILLI IN BREAST MILK OF TUBERCULOUS WOMEN *

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AND
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Behring announced in 1903 that pulmonary tuberculosis could be induced from intestinal infection and that infants often become tuberculous from the milk fed to them Since then there have been many investigations of the occurrence of tubercle bacilli in milk The milk of tuberculous cows is of most importance in such investigations but the milk of tuberculous women is also worthy of consideration The demonstration of tubercle bacilli in human milk and the production of tuberculosis in animals with such milk would point out a possible means of direct transmission of the disease from mother to child Early life is the period when individuals are most susceptible to tuberculosis and every possible avenue of infection of children should be investigated and safeguarded if possible

The available statistics regarding the bacteriology of human milk are much less than those of cow s milk, and the literature reveals a lack of concerted conclusions Cow s milk has been widely investigated and the many researches of the occurrence and incidence of tubercle bacilli as well as the abattoir and tuberculin statistics have established certain accepted results Chief of these is that the milk of a tuberculous cow should not be used for food However, cow's milk is a much greater source of food supply, and specimens and other necessary data are more readily obtained, which perhaps accounts for its wider research

Holt[1] states that

> Tubercle bacilli have been demonstrated by Roger and Garnier in the milk of a woman with advanced tuberculosis but ordinarily they are not present unless the mammary glands are the seat of the disease

Marfan[2] also mentions the case of Roger and Garnier and the case of Demme, and he states that these are the only two authentic cases of children being infected by the mother's milk He thinks it is best not to allow a tuberculous mother to nurse her child because the mother's nutrition is lowered and the child receives an insufficient amount of milk, which probably contains toxic substances even if it does not contain tubercle bacilli

Kurashiga[3] and his co-workers found tubercle bacilli in the breast milk of tuberculous women who had no mammary disease However, they also found tubercle bacilli in the blood of tuberculous patients in all stages of the disease, and also in the blood of healthy adults in considerable numbers These findings have not been confirmed by many other observers

Bandelier and Roepke[4] say

> The danger of transference of tubercle bacilli to the infant is a real one, according to observations on animals and humans the mammary glands have no special defensive power and Cornet was able in several rare instances to find tubercle bacilli in the milk of tubercular women who were not suffering with miliary tuberculosis The danger of infection from the mother s milk is very small compared with the much greater one of infection during the naturally intimate relationship between mother and child, provided the tuberculosis is of the open form

Deutsch s observations on nursing and nonnursing tuberculous mothers and their infants are of importance He used healthy mothers as a comparison, and he considered active, inactive and suspicious cases of tuberculosis the active cases had favorable prognosis He stated that suckling had on the tuberculous mother only rarely a good effect, usually an unfavorable and sometimes a destructive one Almost all the infected children had been suckled by tuberculous mothers, while the children who were not suckled, even if there was a hereditary tendency, all remained healthy Deutsch apparently inclines toward the view that the milk of a tuberculous mother contains some toxic substance, which in some way lowers the resistance of the child

Butler[6] investigated the opsonic content of breast milk of normal mothers, for tubercle bacilli, with negative results

Noeggerath investigated the occurrence of tubercle bacilli in the breast milk of twenty-six tuberculous women He injected guinea-pigs intraperitoneally and subcutaneously with breast milk, and four months later killed the guinea-pigs and examined them for tuberculosis He produced tuberculosis in guinea-pigs with the milk from four cases, one active case, two latent and one suspect Noeggerath does not believe that tubercle bacilli are excreted in breast milk in large enough numbers to be a frequent and wide source of danger to the child However, he thought it best for tuberculous mothers to feed their children artificially

At Sea View Hospital, Staten Island, N Y, during the past year and a half, the breast milk of twenty-eight tuberculous women has been examined for tubercle bacilli Some of these women gave birth to children in this hospital, others entered the hospital after childbirth elsewhere The specimens of milk were obtained from these women twice each week, from 3 to 5 c c being gathered by breast massage, under aseptic precautions, for each examination All specimens were examined within two hours after they were withdrawn from the breast A plain smear was first examined for tubercle bacilli, and then the remainder of the specimen was reduced with weak antiformin solution and the resulting sediment examined for tubercle bacilli The usual Ziehl Neelsen staining technic was used The antiformin procedure was carried out in the following manner The milk specimen was mixed with an equal amount of 5 to 10 per cent antiformin solution, depending on the consistency of the milk, and placed in the incubator for one hour It was then centrifuged for ten minutes at high speed,

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* Read before the Section on Pathology and Physiology at the Sixty Eighth Annual Session of the American Medical Association New York, June 1917

[1] Holt L. Emmet The Diseases of Infancy and Childhood 1910, 139

[2] Marfan, A. B Pathogenic Micro-Organisms in Milk, Le nourisson 1916 **4**, 34

[3] Kurashiga T Mayema R and Yamada G Ausscheidung des Tuberkelbazillen aus der Milch tuberculoser Frauen Ztschr f Tuberk. 1912 **18**, 433

[4] Bandelier and Roepke Clinical System of Tuberculosis 1913, p 338

[5] Deutsch Tuberculose und Stillen, München med Wchnschr, 1910 **57**, 1335

[6] Butler W J The Opsonic Content of Breast Milk Tr VI Internat. Cong Tuberc., **2** Sec. iv, p 390

[7] Noeggerath C T Das Stillverbot bei Tuberkulose und Tuberkulose Verdacht Prakt. Ergebn d Geb u Gynec 1911 **4**, 1

the supernatant liquid decanted and the sediment washed with distilled water and again centrifuged for ten minutes The sediment was smeared on slides, fixed with the usual egg albumin fixative, stained and examined Specimens from each of the last fifteen of our series were injected into guinea-pigs intraperitoneally, and the guinea-pigs were killed six weeks later and examined for tuberculous changes

The twenty-eight tuberculous women had the following various types of tuberculosis There were twelve moderately advanced, uncomplicated, one moderately advanced with an orthopedic complication, two moderately advanced complicated by tuberculous laryngitis, nine far advanced, uncomplicated, and four far advanced complicated by tuberculous laryngitis The ages ranged from 19 to 40 Their tuberculous manifestations varied from those of the chronic indolent fibroid to the rapid fulminating miliary types One-half (fourteen) seemed to show some improvement during their stay in the hospital, four died inside of a month after delivery, and the remaining ten showed no improvement Most of the group were multiparas There was no apparent mammary disease or suspicion of such in any case

As stated before, specimens from fifteen cases were injected into guinea-pigs, intraperitoneally All were subsequently negative, no tuberculous changes being found and no effects of any kind from the milk injections

Altogether there were about 450 microscopic examinations of specimens taken biweekly from the whole series of twenty-eight cases These were all negative except one, which was positive once, and one other specimen from the same case which was suspicious once This case was a pulmonary-orthopedic patient with negative sputum, which was ascertained by repeated examinations for over eight months, and she had no symptoms of active pulmonary tuberculosis She had tuberculous bones in both wrists which were progressing very favorably This woman insisted on nursing her child and she nursed it regularly for about seven months The child is now over 1½ years old, has never been sick, and seems to be a very healthy and well developed child We regret that we did not have an opportunity to inject a specimen of her milk into a guinea-pig, for it is questionable whether or not the acid-fast bacilli found in her milk were tubercle bacilli

The specimens were taken during all periods of mammary activity both before and after childbirth and from the one who nursed her child In one case we obtained specimens regularly for eighty-eight days before labor, and in another case for over a year since labor Colostrum was frequently examined and twice injected into guinea-pigs

When we first began our microscopic examinations we were a little doubtful as to the efficiency of such examinations, for we supposed that acid-fast bacilli other than tubercle bacilli might be found However, only one case showed acid-fast bacilli, the pulmonary-orthopedic mentioned, therefore we experienced no difficulty on that point Our examinations were made within two hours after withdrawal from the breast, which may account for this

We also made some observations on two guinea-pigs that were fed breast milk from two tuberculous women The milk from these women, both of whom had normal full term deliveries in the hospital, was fed to the animals three times daily, for one month As much milk was obtained for each feeding as was possible, the amounts varying from 10 to 40 c c The pigs were a little reluctant at the beginning to take the milk, but after the first day or two they both took it very readily A small amount of lettuce and bread was also fed to them Our idea in this experiment was to ascertain if the animals became *tuberculous*, and if they did not, whether they gained weight and throve on these feedings If these specimens of milk contained toxic substances, as Marfan[2] and Deutsch[5] seem inclined to believe, it was thought that the guinea pigs might show some effects from the daily ingestion of such relatively large amounts Both guinea-pigs had lost weight at the end of the thirty days of feeding A short time after we stopped the feeding of the milk, necropsy was performed on the guinea-pigs, and no evidences of tuberculosis were found in either animal

All of our results were negative with the one exception, which may be questionable The observations of the others herein referred to, and our experiences indicate that tubercle bacilli are infrequently found in the breast milk of tuberculous women who have no mammary disease The possibility of infection from such milk is probably slight, but it is very likely best to inderdict nursing in every instance because the other additional factors, such as the danger of infection during the intimate relationship of the mother and the nursing child, the possibility of toxic substance in the milk and the frequent bad effects of nursing on the mother, would seem, collectively, to be sufficient reason to resort to artificial feedings An exception might be made that a mother with a closed case of tuberculosis should be allowed to nurse her infant, although it is often difficult to distinguish between a closed and open case after pregnancy and labor The tuberculous woman undergoes a profound strain before and during childbirth, and it frequently takes a long period of observation to ascertain if her disease has been activated

Sea View Hospital, Staten Island, N Y

Clinical Notes, Suggestions, and New Instruments

PAINLESS AND BLOODLESS REMOVAL OF CHALAZION WITHOUT LID CLAMP

Edward J Bernstein, M D, Detroit

While the application of the lid clamp to the lids, for the removal of chalazion, controls hemorrhage, it is quite painful even though the conjunctiva is quite well cocainized As soon as the clamp is released, an annoying bleeding occurs and the curettage of the sac makes even the most stoic wince It occurred to me that it would be a gain if I could make use of the Freer method of anesthesia and blood control used in nasal surgery I have done this with such success that I give it to the profession

A cotton tipped probe is dipped into the stock solution of epinephrin, and a few flakes of pure cocain picked up, this is rubbed into the conjunctiva over the mass and a short distance beyond In two minutes, with the same probe and solution, the area is again rubbed In another two minutes anesthesia and blanching is complete After making the cut into the conjunctiva, I have made use of Meierhof's tympanum curet to remove the sac This curet differs from the ordinary type in that its edges are serrated and thus thoroughly remove the whole sac with the least damage

MEDICAL EDUCATION IN THE UNITED STATES

ANNUAL PRESENTATION OF EDUCATIONAL DATA FOR 1917 BY THE COUNCIL ON MEDICAL EDUCATION

The tabulated statistics herewith presented are for the year ending June 30 1917 and are based on reports received from the medical colleges or from other reliable sources We take pleasure in acknowledging here the courtesy and cooperation of the officers of the colleges who have made the compilation of these complete statistics possible

STATISTICS OF COLLEGES

Table 1 (pages 534-536) gives the colleges in session during 1916 17, the population of the city the rating given to the college in the latest classification of the Council on Medical Education, the number of students men and women registered during the year, the number of 1917 graduates, men and women the number of graduates holding collegiate degrees, the number of teachers for each college, the number of weeks of actual work in the college year the total fees for each year the executive officer of the college and the dates of beginning and ending of the next session The figures in heavy-faced type show the totals by states Beginning on page 553 are given essential facts concerning all medical colleges, arranged by states

HOME STATES OF MEDICAL STUDENTS

Table 2, on pages 538-541, shows from what states the students came who were in attendance at each medical college during the session of 1916-17 The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute more students in proportion to the population than those which have no colleges This is shown by the dark zone of figures running diagonally down the page A comparison of this table with the large tables based on state board examinations,[1] which show the distribution of the alumni of each college, is interesting The college which has widely distributed alumni usually has a student body from an equally large number of states

The state furnishing the largest number of students this year was New York, with 2,113 Illinois contributed 1,159 and Pennsylvania, 1,106 The next states, in the order of the number of students contributed, are Ohio, 628, Massachusetts, 615, Texas, 501, and Michigan, 409 Four states had less than 20 each, these being Arizona, 11, New Mexico, 9, Wyoming, 8, and Nevada, 4 There were 105 students from Hawaii, Porto Rico and the Philippine Islands, and 317 students from foreign countries

In Table 3, on page 542, the students enrolled in each college are shown by classes This permits one to see whether the attendance at each college is increasing or decreasing The total attendance for the first year was 4,107, as compared with 3,582 freshmen last year The second year attendance was 3,117, as compared with 3,094 last year The enrolments for the third and fourth years, respectively, were 2,866 and 3,674, as compared with 3,559 and 3,727 last year The freshman and sophomore class enrolments, therefore, show increases, respectively, of 525 and 23 over the enrolments of the previous year This indicates that the college enrolments have largely been readjusted under the higher entrance requirements and, as was expected, the enrolment of medical students is again on the increase

AGES OF GRADUATES OF 1917

Table 4 gives figures showing the ages of the graduates of 79 medical colleges, from which complete information regarding ages was obtained These schools are arranged in three groups those which required for admission (1) a high school education, (2) one year of college work and (3) two or more years of college work in 1913, at the time these graduates matriculated The chief difference is noted in the number of students in the groups who graduated under the age of 22 There were 35 in Group 1, 1 in Group 2 and none in Group 3 In Group 1 the largest number of graduates (260) were 24 years of age, in Group 2 also the largest number (76) were 24 years of age, while in Group 3 the largest number (214) were 25 years of age It is noteworthy that the colleges included in Group 1 enrolled a proportionately larger number who were over 35 years of age In fact, in Group 1 there were 16 graduates over 40 years of age and 2 who were over 50 years In Groups 2 and 3, there were, respectively, 3 and 4 graduates over 40 years of age and none over 50 A study of these fig-

(*Continued on page 537*)

TABLE 5 — MEDICAL COLLEGE ATTENDANCE

Year	Non sectarian	Homeo pathic	Eclectic	Physio-Med	Nondescript	Total
1880	9 776	1,220	830			11,826
1890	13,5 1	1 164	710			15 404
1900	22 710	1 939	522			25 171
1901	23,846	1 683	664	80	144	26 417
1902	24,878	1 617	765	91	150	27,501
1903	24,930	1 498	848	149	190	27 615
1904	23 662	1,209	1 014	123	234	28 142
1905	24 119	1 104	578	114	232	26 147
1906	23 116	1,085	644	110	249	25,204
1907	22,303	1 039	545	97	292	24,276
1908	20 936	891	470	99	206	22 602
1909	20,554	899	413	52	227	22,145
1910	20 136	867	455	49	19	21,526
1911	18,414	890	433	49		19 786
1912	17,277	827	308			18 412
1913	15,919	840	256			17 015
1914	15 438	794	270			16,502
1915	13 914	736	241			14,891
1916	13 121	638	263			14 022
1917	12 934	580	250			13 764

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[1] The Journal State Board Number April 14 1917 pages 1102 to 1109 inclusive.

TABLE 1—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

Marginal Number	NAME AND LOCATION OF COLLEGE	Population of City where College is Located (Census Bureau Estimate of 1916)	Classification by Council on Medical Education	No of Students Registered 1916-17		Graduates 1917		Grads with A B, B S or Ph B	Number of Teachers	Weeks in College Year	Total Fees (Dollars)				Executive Officer	Session of 1917 18		Marginal Number
				Men	Women	Men	Women				1st year	2d year	3d year	4th year		Begins 1917	Ends 1918	
	ALABAMA			43		18		1										
1	University of Alabama School of Medicine, Mobile	56,536	A	43		18		1	41	32	160	155	155	180	T H Frazer, M D, Dean	Oct 4	June 5	1
	ARKANSAS			43		15		1										
2	University of Arkansas Medical Department, Little Rock	55 158	B	43		15		1	60	34	50	50	50	50	Morgan Smith, M D, Dean	Sept 17	May 29	2
	CALIFORNIA			477	68	118	25	43										
3	College of Medical Evangelists, Loma Linda	125	C	47	8	9	4	4	52	36	166	161	136	136	Newton Evans, M D, President	Sept 2	May 30	3
4	College of Physicians and Surgeons Los Angeles	465 367	B	123	13	44	5		103	36	220	217	202	227	Charles W Bryson, M D, Dean	Sept 4	June 6	4
5	Oakland College of Medicine and Surgery, Oakland	190,803	B	13	3	3	1	1	44	35	185	179	150	175	Edward N Ewer, M D, Registrar	Aug 20	May 14	5
6	College of Physicians and Surgeons of San Francisco	448,502	C	73	4	7	1		39	36	193	192	193	217	C O Southard, M D, Secretary	Sept 3	June 6	6
7	Hahnemann Medical College of the Pacific San Francisco —H	448,502	B	26	6	14	4		27	36				130	James W Ward, M D, Dean	Aug 14	May 15	7
8	Leland Stanford Junior Univ School of Medicine, San Francisco	448,502	A	80	20	17	6	21	97	34	160	165	150	150	William Ophüls, M D, Dean	Oct 1	June 13	8
9	University of California Medical School, San Francisco	448 502	A	115	14	22	4	17	130	33	195	155	160	150	Herbert C Moffitt, M D, Dean	Aug 20	Apr 27	9
	COLORADO			81	4	20	1	16										
10	University of Colorado School of Medicine, Denver[1]	253,161	A	81	4	20	1	16	89	35	85	85	75	75	Charles N Meader, M D, Dean	Sept 10	June 5	10
	CONNECTICUT			74	3	10		9										
11	Yale University School of Medicine New Haven	147,095	A	74	3	10		9	75	35	195	165	150	163	George Blumer, M D, Dean	Sept 27	June 19	11
	DISTRICT OF COLUMBIA			276	9	66	1	15										
12	Georgetown University School of Medicine Washington	358,679	A	60		13		7	91	34	165	150	150	150	George M Kober, M D, Dean	Sept 26	June 12	12
13	George Washington University Medical School Washington	358 679	A	108	6	40	1		94	33	175	175	175	175	W C Borden, M D, Dean	Sept 26	June 5	13
14	Howard University School of Medicine, Washington	358 679	A	108	3	13		8	39	32	140	130	120	137	Edward A Balloch, M D, Dean	Oct 1	June 5	14
	GEORGIA			204		74		6										
15	Emory University School of Medicine Atlanta[2]	184,873	A	149		63		5	122	32	172	160	155	180	W S Elkin, M D, Dean	Sept 24	May 28	15
16	University of Georgia Medical Department, Augusta[1]	49,848	A	55		11		1	49	34	55	50	55	60	William H Doughty, Jr	Sept 12	May 29	16
	ILLINOIS			1802	115	497	34	158										
17	Chicago College of Medicine and Surgery Chicago	2,447 045	B	377	38	171	11		172	32	160	155	155	155	George E Wyneken, M D, Secretary	Sept 25	May 28	17
18	Chicago Hospital College of Medicine Chicago[3]	2 447 045	C	53		7					137	135	116	146				18
19	Hahnemann Medical College and Hospital of Chicago —H	2,447 045	B	67	9	25	5	3	83	34	176	162	176	192	Joseph P Cobb, M D, Dean	Sept 24	June 6	19
20	Jenner Medical College Chicago	2 447 045	C	113	5	13	1		125	36	140	135	135	175	John D MacKellar, M D, Dean	Sept 19	June 22	20
21	Loyola University School of Medicine Chicago	2,447 045	B	220	8	79	4	5	111	33	165	150	150	175	Alfred de Roulet, M D, Dean	Sept 25	June 1	21
22	Northwestern University Medical School Chicago	2,447 045	A	247		42		20	148	33	190	195	190	206	Arthur I Kendall, M D Dean	Oct 2	June 8	22
23	Rush Medical College (University of Chicago)	2,447 045	A	523	44	113	11	116	274	34	185	180	180	195	John M Dodson, M D, Dean	Oct 1	June 15	23
24	University of Illinois College of Medicine Chicago	2,447 045	A	202	11	47	2	9	128	34	155	160	150	165	A C Eycleshymer, M D, Dean	Oct 1	June 12	24
	INDIANA			169	6	37		29										
25	Indiana University School of Medicine, Indianapolis	265,578	A	169	6	37		29	161	35	100	100	130	130	Charles P Emerson, M D, Dean	Sept. 17	June 12	25
	IOWA			165	4	21		8										
26	State University of Iowa College of Medicine Iowa City[1]	10 087	A	159	3	20		8	51	35	95	85	85	95	Lee Wallace Dean, M D, Dean	Sept 17	June 7	26
27	State University of Iowa College of Homeo Med Iowa City —H [1]	10 087	A	6	1	1		0	26	35	95	85	85	95	George Royal, M D, Dean	Sept. 17	June 7	27
	KANSAS			110	8	18		15										
28	University of Kansas School of Medicine, Rosedale[1]	392,093	A	110	8	19		15	57	35	60	60	100	100	M T Sudler, M D, Associate Dean	Sept 20	June 12	28
	KENTUCKY			118		66		4										
29	University of Louisville Medical Department, Louisville	237 012	A	118		66		4	96	33	175	176	179	183	Henry Enos Tuley, M D, Dean	Sept 25	June 6	29
	LOUISIANA			259	17	51	1	18										
30	Tulane University of Louisiana School of Medicine, New Orleans	366,484	A	259	17	51	1	18	116	33	190	190	185	215	Isadore Dyer, M D, Dean	Sept 26	June 5	30
	MAINE			54		10		4										
31	Bowdoin Medical School Brunswick Portland	63 014	A	54		10		4	60	33	120	120	110	110	Addison S Thayer, M D Dean	Oct 11	June 20	31

	MARYLAND			815	42	165	9	71										
32	Johns Hopkins University Medical Department Baltimore	584 60	A	317	1	83	9	61	177	33	[illegible] 7	[illegible] 7	[illegible]	[illegible]	J Whitridge Williams M D Dean	Oct 2	June 11	32
33	Univ of Maryland School of Med & Coll of P & S Baltimore	584 60	A	[illegible] 8		82		11	168	[illegible]	1 0	170	1 0	00	J M H Rowland M D Dean	Oct 1	June 3	33
	MASSACHUSETTS			803	48	165	13	192										
34	Boston University School of Medicine Boston —H	71 179	A	51	11	21	3	3	69	37	1 0	1 7	1 7	150	John P Sutherland M D Dean	Oct 4	June 5	34
35	College of Physicians and Surgeons Boston[4]	[illegible]	C	11	4	10	1											35
36	Medical School of Harvard University Boston	71 179	A	3?7		67		6	17	8	0	[illegible]	[illegible]		Edward H Bradford M D Dean	Sept 24	June 9	36
37	Tufts College Medical School Boston	71 179	A	[illegible]	31	67	9	14	4	6	100	10[illegible]	1[illegible]	1	Charles F Painter M D Dean	Sept 20	June 13	37
	MICHIGAN			511	20	130	4	53										
38	University of Michigan Medical School Ann Arbor[1]	11 684	A	[illegible]	0	8	1	4	41		11[illegible]	10[illegible]	1[illegible]	11[illegible]	Victor C Vaughan M D Dean	Oct 2	June 27	38
39	University of Michigan Homeo Medical School Ann Arbor H[1]	11 684	A	18	0	8	0	1	0		11	1[illegible]	1[illegible]	11	W B Hinsdale M D Dean	Oct 2	June 27	39
40	Detroit College of Medicine and Surgery Detroit	[illegible] 17	A	1[illegible]1		64			1 0	3	1[illegible]	1	1 0	1 0	W H MacCraken M D Secretary	Sept 4	May 21	40
	MINNESOTA			258	9	17		13										
41	University of Minnesota Medical School Minneapolis	3?3 100	A	2?0	9	17		13	1 1	3	1 0	1 0	1 0	1 0	Elias P Lyon M D Dean	Oct 10	June 20	41
	MISSISSIPPI			60														
42	University of Mississippi School of Medicine Oxford	011	A	60					18	34	1[illegible]	1[illegible]			W S Leathers M D Dean	Sept 19	June 4	42
	MISSOURI			632	27	144	9	37										
43	University of Missouri School of Medicine Columbia	11 771	A	50	5					74	73	4			Guy L Noyes M D Dean	Sept 17	June 5	43
44	Eclectic Medical University Kansas City —E	3?4 ?3	C	[illegible]	4	0	[illegible]		31	0	1 0	1 0	1 0	1 0	Samuel McCubbin M D Dean	Sept 10	May 3	44
45	Kansas City College of Medicine and Surgery Kansas City —E	3?0,?33	[illegible]	10	12	16					1 0	1 0	1 0	1 0				45
46	National University of Arts and Sciences Med Dept St Louis[6]	71? 8	C	41	3	3	1		3[illegible]	73				1[illegible]0	F J Cooley M D Secretary	June 1	Feb 5	46
47	St Louis College of Physicians and Surgeons St Louis[7]	71? 8	C	13	3	10	1		[illegible]	[illegible]	110	110	110	1	L I Marks M D Secretary	Oct 1	June 3	47
48	St Louis University School of Medicine St Louis	7?? 8	A	4		41		1[illegible]	1 0	3[illegible]	1[illegible]	1	1	1	Hanau W Loeb M D Dean	Oct 1	June 1	48
49	Washington University Medical School St Louis	[illegible]	A	12[illegible]		31		[illegible]	108	24	1	1 0	1 0	1	P A Shaffer M D Dean	Sept 27	June 13	49
	NEBRASKA			261	7	61	2	20										
50	Lincoln Medical College Lincoln —E	40 029	C	17		4				74					F L Wilmeth M D Dean	Sept 15	June 1	50
51	John A Creighton Medical College Omaha	13? 1??	A	10	1	42	1	3	4		1[illegible]	11[illegible]	11[illegible]	1[illegible]	James R Clemens M D Dean	Sept 21	June 1	51
52	University of Nebraska College of Medicine Omaha	13? 1??	A	137	6	15	1	17	60	[illegible]	1[illegible]	1 0	1 0	1 0	Irving S Cutter M D Dean	Sept 13	June 12	52
	NEW HAMPSHIRE			40														
53	Dartmouth Medical School Hanover*	1,310	A	40					12	36	172	173			John M Gile M D Dean	Sept 20	June 19	53
	NEW YORK			2223	92	462	23	133										
54	Albany Medical College Albany	103 380	A	110		47		3	68	34	1[illegible]5	175	170	16[illegible]	Thomas Ordway M D Dean	Sept 24	June 7	54
55	University of Buffalo Department of Medicine Buffalo	101,33[illegible]	A	179	17	54	6	2	112	33	200	200	175	17[illegible]	Thomas H McKee M D Dean	Sept 24	June 7	55
56	Columbia University College of Phys and Surgs New York City	[illegible] 468 190	A	4[illegible]1		40		72	2[illegible]1	33	[illegible]	2 1	2 0	[illegible]	Samuel W Lambert M D Dean	Sept 8	June 5	56
57	Cornell University Medical College New York City	5 468,190	A	130	20	91	3	27	123	34	1 0	15[illegible]	15[illegible]	[illegible]	William M Polk M D Dean	Oct 1	June 13	57
58	Fordham University School of Medicine New York City	5 468 190	A	29		19		2	111	34	225	216	212	10	William P Healy M D Dean	Sept 27	June 10	58
59	Long Island College Hospital Brooklyn	1 851 065	A	2[illegible]5		70			118	33	[illegible]	2 0	2 0	[illegible]	Otto V Huffman M D Dean	Sept 4	May 31	59
60	New York Homeopathic Med College and Flower Hospital —H	5 468,190	B	170		42			81	31	200	200	200	200	Royal S Copeland M D Dean	Sept 2[illegible]	May 22	60
61	New York Medical College and Hospital for Women —H	5 468 190	C		38		12		67	34	150	17[illegible]	160	150	Cornelia D Brandt M D Dean	Sept 17	June 4	61
62	University and Bellevue Hospital Medical College New York City	5 468 190	A	420		61		5	142	34	20[illegible]	200	200	[illegible]	Samuel A Brown M D Dean	Sept 23	June 1[illegible]	62
63	Syracuse University College of Medicine Syracuse	1?2 ?31	A	116	8	27	2	[illegible]	1[illegible]5	3[illegible]	200	[illegible]	00	210	John L Heffron M D Dean	Sept 18	June 12	63
	NORTH CAROLINA			125		17												
64	University of North Carolina School of Medicine Chapel Hill	1 119	A	64					21	35	1[illegible]5	172			Isaac Hall Manning M D Dean	Sept 11	June 5	64
65	North Carolina Medical College Charlotte*	38,887	B	21		17												65
66	Leonard Medical School Raleigh*	19 933	B	8					[illegible]8	32	115	115			George H Stoddard Dean	Sept 26	May 9	66
67	Wake Forest College School of Medicine Wake Forest	1 443	A	32					11	35	115	115			F B Earnshaw Secretary	Sept 4	May 24	67
	NORTH DAKOTA			32	1													
68	Univ of North Dakota School of Med University (Grand Forks)	14,827	A	32	1				10	34	50	50			Harley E French M D Dean	Oct 8	June 20	68
	OHIO			510	24	144	4	46										
69	Eclectic Medical College Cincinnati —E	400 700	B	62	[illegible]	20		2	31	32	125	120	120	120	John K Scudder M D Secretary	Sept 14	May 14	69
70	University of Cincinnati College of Medicine	400 700	A	85	9	12	2	8	150	34	1[illegible]0	1[illegible]0	1[illegible]0	170	Christian R Holmes M D Dean	Oct 2	June 15	70
71	Western Reserve University School of Medicine Cleveland	6?6,97[illegible]	A	16[illegible]		52		32	107	34	175	160	1[illegible]4	15[illegible]	C A Hamann M D Dean	Sept 27	June 13	71
72	Ohio State University College of Medicine Columbus	209 722	A	133	9	63	2	4	61	36	152	152	152	152	F F McCampbell M D Dean	Sept 18	June 18	72
73	Ohio State University College of Homeo Medicine Columbus —H	209 722	B	35	1	8			26	36	150	150	150	150	Claude A Burrett M D Dean	Sept 18	June 18	73
	OKLAHOMA			81	4	24		2										
74	University of Oklahoma School of Med Norman Oklahoma City	88 158	B	81	4	24		2	66	34	43	23	25	25	Leroy Long M D Dean	Sept 18	June 4	74
	OREGON			69	3	11	1	4										
75	University of Oregon Medical School, Portland	272,833	A	69	3	11	1	4	78	32	155	150	150	150	K. A J Mackenzie, M D, Dean	Oct 1	June 1	75

H —Homeopathic E —Eclectic.

* Gives only the first two years of the medical course

TABLE 1—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA—(Concluded)

Marginal Number	NAME AND LOCATION OF COLLEGE	Population of City where College is Located (Census Bureau Estimate of 1916)	Classification by Council on Medical Education	No of Students Registered 1916-17		Graduates 1917		Grads with A B, B S or Ph B	Number of Teachers	Weeks in College Year	Total Fees (Dollars)				Executive Officer	Session of 1917 18		Marginal Number
				Men	Women	Men	Women				1st year	2d year	3d year	4th year		Begins 1917	Ends 1918	
	PENNSYLVANIA			**1411**	**68**	**381**	**20**	**112**										
76	Hahnemann Medical College and Hospital of Philadelphia —H	1 683,664	A	111		37		9	86	33	185	185	185	200	Wm A Pearson, M D , Dean	Oct 1	June 6	76
77	Jefferson Medical College of Philadelphia	1,683,664	A	540		140		29	157	33	215	210	210	210	Ross V Patterson, M D , Dean	Sept. 24	June 1	77
78	Medico Chirurgical College of Philadelphia[9]	1,683 664	A	184		86		5	67									78
79	Temple University Department of Medicine Philadelphia	1,683,664	B	79	4	27	1		91	35	175	170	160	161	Frank C Hammond, M D , Dean	Sept 21	June 15	79
80	University of Pennsylvania School of Medicine Philadelphia	1 683,664	A	390	11	72	1	50	190	35	233	210	210	214	William Pepper, M D , Dean	Sept 28	June 19	80
81	Woman's Medical College of Pennsylvania Philadelphia	1,683 664	A		43		17	4	61	34	192	176	183	180	Martha Tracy, M D , Acting Dean	Sept 19	June 5	81
82	University of Pittsburgh School of Medicine, Pittsburgh	571,984	A	107	10	10	1	15	108	34	265	250	250	255	Thomas S Arbuthnot, M D , Dean	Oct 1	June 12	82
	SOUTH CAROLINA			**59**		**24**		**8**										
83	Medical College of the State of South Carolina, Charleston	60,427	A	59		24		8	59	33	150	150	145	145	Robert Wilson, Jr , M D , Dean	Sept 28	June 6	83
	SOUTH DAKOTA			**16**	**1**													
84	University of South Dakota College of Medicine, Vermillion*	2,187	A	16	1				10	35	60	60			Christian P Lommen, B S , Dean	Sept 20	June 12	84
	TENNESSEE			**546**	**8**	**236**	**3**	**31**										
85	Lincoln Memorial University Medical Department Knoxville[10]	38,300	B	5		4												85
86	University of Tennessee College of Medicine Memphis[4]	140 113	A	117	5	56	2	3	105	34	107	102	102	127	L Junius Desha Ph D , Dean	Sept 22	June 5	86
87	University of West Tennessee College of Med and Surg , Memphis	140 113	C	20		4			24	31	60	60	60	70	M V Lynk, M D , Dean	Sept 17	May 7	87
88	Meharry Medical College, Nashville	115 978	B	252	3	97	1	20	25	30	70	70	70	80	George W Hubbard, M D , President	Sept 25	May 9	88
89	Vanderbilt University Medical Department, Nashville	115,978	A	152		75		8		33	125	125	125	175	Lucius E Burch, M D , Dean	Oct 1	June 12	89
	TEXAS			**337**	**18**	**75**	**3**	**13**										
90	Baylor University College of Medicine, Dallas	118,482	A	44	1	11			54	32	120	115	115	125	Edward H Cary, M D , Dean	Oct 1	May 31	90
91	Fort Worth School of Medicine Fort Worth	99,528	B	51	4	16	1		68	33	115	125	115	110	Samuel A Woodward, M D Dean	Oct 1	June 8	91
92	University of Texas Department of Medicine, Galveston	41 076	A	242	13	48	2	13	41	32	78	47	30	17	William S Carter, M D , Dean	Oct 1	May 31	92
	UTAH			**22**														
93	University of Utah School of Medicine, Salt Lake City* [4]	113 567	A	22					23	34	100	100			Perry G Snow, M D , Dean	Sept 13	June 7	93
	VERMONT			**82**		**18**		**3**										
94	University of Vermont College of Medicine Burlington	21 247	A	82		18		3	37	36	145	145	145	170	Henry C Tinkham, M D , Dean	Sept 26	June 26	94
	VIRGINIA			**314**		**119**		**18**										
95	Medical College of Virginia Richmond	154 674	A	206		96		12	132	34	170	170	170	200	Stuart McGuire M D , Dean	Sept 18	June 4	95
96	University of Virginia Department of Medicine, Charlottesville	6,765	A	108		23		6	25	36	140	140	140	14	Theodore Hough, M D , Dean	Sept. 13	June 12	96
	WEST VIRGINIA			**33**	**1**													
97	West Virginia University School of Medicine, Morgantown*	12,239	A	33	1				15	35	35	20			John N Simpson, M D , Dean	Sept 17	June 12	97
	WISCONSIN			**181**	**8**	**13**		**10**										
98	University of Wisconsin Medical School Madison* [4]	30 084	A	124	8				32	36	70	70			Charles R Bardeen M D , Dean	Sept 24	June 26	98
99	Marquette University School of Medicine, Milwaukee	428,062	A	57		13		10	101	36	175	170	170	10[illegible]	J Van de Erve M D Associate Dean	Sept 13	June 13	99
	CANADA[11]			**1597**	**59**	**311**	**4**	**36**										
100	University of Alberta Faculty of Medicine, Edmonton, Alta †	60 000	—	20	4				15	30	87	87			Cecil E Race, A B Registrar	Oct. 1	May 10	100
101	Dalhousie University Faculty of Medicine Halifax N S	46 619	B	63	8	14		1	30	32	100	110	110	110	D Fraser Harris, M D , Secretary	Sept 25	May 30	101
102	Queen's University Faculty of Medicine Kingston Ont	18 874	C	277		56			38	32	115	115	115	115	J C Connell M D , Dean	Sept 26	May 29	102
103	University of Toronto Faculty of Medicine Toronto Ont	376 538	A	431	30	96	4	15	201	33	150	150	150	150	C K Clarke, M D , Dean	Sept 25	June 1	103
104	Western University Faculty of Medicine, London Ont	46 300	B	71		11		2	57	32	115	115	115	140	H A McCallum M D , Dean	Oct 1	May 31	104
105	McGill University Faculty of Medicine, Montreal Que	473 712	A	335		63		10	131	31	174	181	174	204	John W Scane M D Registrar	Oct 3	May 24	105
106	Montreal School of Medicine and Surgery Montreal Que	473,712	B	102		29			75	35	118	126	126	138	E P Lachapelle M D , Dean	Oct 3	June 29	106
107	Laval University Faculty of Medicine Quebec Que	78 100	B	87		7		6	29	34	75	75	75	75	Edwin Turcot, M D , Dean	Sept 18	June 1	107
108	University of Manitoba, Manitoba Medical College Winnipeg	200 000	B	112	8	32		2	58	30	155	155	155	155	Gordon Bell M D Acting Dean	Sept 25	May 11	108

H —Homeopathic, E —Eclectic

* Gives only the first two years of the medical course

† Gives the first three years of the five year medical course

[1] Fees given are for residents of the state For nonresidents amounts should be added for each year in the several states as follows Colorado, $25 Georgia, $100, Iowa, $15 Kansas, $20 (for the first two years only), Michigan $20 (and $25 extra the first year for matriculation), Tennessee, $50, Utah, $25, and Wisconsin, $124

[2] Name recently changed formerly the Atlanta Medical College

[3] Figures are accurate Numbers of women students and graduates not obtained

[4] Figures are from a reliable source partly verified by official reports

[5] This college is an offshoot of the Eclectic Medical University an institution rated in Class C It is reported as not recognized by the Missouri State Board of Health

[6] Has declared its intention to discontinue in 1918, after the one remaining class has been graduated

[7] This college merged with the National University of Arts and Sciences in 1915 but in 1916 withdrew and resumed its career as a separate college

[8] Merged in 1914 with the Medical College of Virginia but retained a nominal existence until the three remaining classes had graduated

[9] Merged in 1916 with the University of Pennsylvania and became its Graduate School of Medicine Continued to teach part of its students, however, during the session of 1916-17

[10] Merged in 1916 with the University of Tennessee College of Medicine but retained a nominal existence until the three remaining classes had graduated

[11] In Canada the entrance requirement to all medical schools is a secondary school education The Canadian colleges are on a par, however, with medical colleges in the United States which require one year of premedical college work since the first of the Canadian five year medical course is devoted largely to courses in physics, chemistry and biology In the United States these courses are required to have been completed in one or two years of *premedical* college work On a similar basis it could be said that the medical schools of the United States are giving a five year, or a six year medical course

(Continued from page 533)

ures shows that for many medical students, preliminary education has nothing to do with the advanced age of graduation. The chief reason why the average age at graduation is so high is the late time in life at which many students decide to take up the study of medicine.

NUMBER OF MEDICAL STUDENTS

The total number of medical students (see Table 5) in the United States for the year ending June 30, 1917 excluding premedical, special and postgraduate students was 13,764, a decrease of 258 below last year. It is noteworthy however (see Table 13, page 544), that in the high grade (Class A) medical colleges the total enrolment of students shows an increase. Of the total number of students, 12,925 (93.9 per cent.) were in attendance at the nonsectarian (regular) colleges, 580 (4.2 per cent.) at the homeopathic and 259 (1.9 per cent.) at the eclectic colleges. As indicated by the larger enrolments in the freshman and sophomore classes the enrolment of medical students has about reached its lowest ebb under the higher entrance requirements.

NUMBER OF MEDICAL GRADUATES

The total number of graduates for the year ending June 30 1917, was 3,379, a decrease of 139 below 1916. The number of graduates from the nonsectarian colleges was 3,134, or 140 less than last year. The number from the homeopathic colleges was 180, or 14 more than last year, and from the eclectic there were 65 graduates, or 13 less than last year.

TABLE 6.—MEDICAL COLLEGE GRADUATES

Year	Nonsectarian	Homeopathic	Eclectic	Physio-Med	Nondescript	Total
1880	2,673	380	188			3,241
1890	3,853	380	221			4,454
1900	4,715	413	86			5,214
1901	4,879	387	148	15	12	5,444
1902	4,490	370	128	10	11	5,009
1903	5,078	430	149	24	17	5,698
1904	5,180	371	146	20	30	5,747
1905	5,146	276	133	22	23	5,600
1906	4,941	[illegible]	[illegible]	22	29	5,364
1907	4,561	215	171	11	22	4,980
1908	4,370	215	116	12	28	4,741
1909	4,163	216	84	11	41	4,515
1910	4,113	183	114	16	14	4,440
1911	4,006	152	110	5		4,273
1912	4,206	185	92			4,483
1913	3,679	209	93			3,981
1914	3,370	154	70			3,594
1915	3,276	195	65			3,536
1916	3,274	166	78			3,518
1917	3,134	180	65			3,379

GRADUATES HOLDING DEGREES IN ARTS

Of the 3,379 medical graduates, 1,099, or 32.5 per cent., were reported to hold also degrees in arts or science. This total includes those taking the combined courses in arts or science and medicine. Last year 26.9 per cent held these degrees and 24.3 per cent in 1915. In 1910 it is noteworthy that only 15.3 per cent. of the graduates showed this evidence of higher preliminary qualifications. Of the 3,134 nonsectarian school graduates, 1,078, or 34.4 per cent., were reported to have baccalaureate degrees, of the homeopathic graduates, 19, or 10.5 per cent., were so reported, and of the eclectic graduates, only 2, or 3.1 per cent., were reported as holding such degrees. As will be noted by referring to Table 12, of the 1,099 graduates holding baccalaureate degrees, 192—the largest number—came from the Massachusetts colleges. Last year New York furnished the largest quota and in 1915 and previous years the Illinois colleges were in the lead. Illinois comes second this year with 158, followed by New York with 133, Pennsylvania with 112 and Maryland with 74. The percentage of graduates holding collegiate degrees is rapidly increasing and will continue to increase, since most medical schools are now requiring two years of college work for admission, which brings more students in the combined course for the B.S. and M.D. degrees.

TABLE 7.—MEDICAL GRADUATES WITH LIBERAL ARTS DEGREES

Year	Nonsectarian			Homeopathic			Eclectic			Totals		
	Graduates	A.B., B.S.	Per Cent	Graduates	A.B., B.S.	Per Cent	Graduates	A.B., B.S.	Per Cent	Graduates	A.B., B.S.	Per Cent
1910	4,113	664	16.1	183	13	7.1	114	3	2.6	4,440	680	15.3
1911	4,006	683	17.0	152	18	11.8	110	4	3.6	4,273	705	16.5
1912	4,206	744	17.7	185	15	8.1	92	4	4.3	4,483	763	17.0
1913	3,679	722	19.6	209	20	9.6	93	1	1.1	3,981	743	18.9
1914	3,370	794	23.6	154	7	4.5	70	6	8.6	3,594	807	22.5
1915	3,276	839	25.6	195	16	8.2	65	3	5.5	3,536	858	24.3
1916	3,274	926	28.3	166	20	12.0	78	0	0.0	3,518	946	26.9
1917	3,134	1078	34.4	180	19	10.5	65	2	3.1	3,379	1099	32.5

WOMEN IN MEDICINE

During the past year there were 610 women studying medicine, or 44 more than last year and 21 less than in 1914. The percentage of women to all medical students is 4.5, a larger percentage than in any previous year. This is true also in regard to women graduates. There were 153 women graduates this

TABLE 8.—WOMEN IN MEDICINE

Year	Total Women Students	Percentage of All Students Both Sexes	Total Women Graduates	Percentage of Graduates Both Sexes	Women's Colleges	Students	Percentage of All Women Students	Graduates	Percentage of All Women Graduates	Co-ed Schools	Students	Percentage of All Women Students	Graduates	Percentage of All Women Graduates
1904	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	188	77.0
1905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	165	75.5
1906	895	3.5	233	4.3	3	189	21.0	33	14.1	90	706	79.0	200	85.9
1907	928	3.8	211	4.2	3	210	22.6	39	18.5	86	718	77.4	172	81.5
1908	835	3.7	185	3.9	3	186	22.3	46	24.9	88	649	77.7	139	75.1
1909	921	4.2	162	3.7	3	169	18.4	33	20.3	91	752	81.6	129	79.7
1910	907	4.2	157	3.5	3	155	17.1	41	26.1	82	752	82.9	116	73.9
1911	680	3.4	159	3.7	2	134	19.7	36	22.6	74	546	80.3	123	77.4
1912	679	3.2	142	3.2	2	143	21.1	32	22.5	64	536	78.9	110	77.5
1913	640	3.8	154	3.8	2	138	21.6	33	21.4	55	502	78.6	121	78.6
1914	631	3.8	121	3.4	2	135	21.4	25	20.7	54	496	78.6	96	79.3
1915	592	4.0	130	3.7	2	116	19.6	38	29.2	53	476	80.4	92	70.8
1916	566	4.0	134	3.8	2	102	18.0	28	20.0	51	464	82.0	106	80.0
1917	610	4.5	153	4.5	2	81	13.3	29	18.9	56	529	86.7	124	81.1

(Continued on page 540)

TABLE 2—DISTRIBUTION OF

Marginal Number	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Marginal Number
		161	11	91	384	116	237	25	98	64	244	31	1 159	333	364	246	135	165	89	200	615	
		Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist of Col	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	
1	University of Alabama School of Medicine, Mobile	89																1				1
2	University of Arkansas Medical Dept, Little Rock			36					1									2				2
3	College of Medical Evangelists Loma Linda		3		14	3				1		1		2	1							3
4	College of Phys and Surgs, Los Angeles*				20	5				1			12	2	7	8	2				3	4
5	Oakland College of Medicine and Surgery, Oakland				6								1			1						5
6	College of Phys and Surgs, San Francisco		1		37	2	2						2			2	2		2		1	6
7	Hahnemann Medical College of the Pacific—H				21									1	1				1		1	7
8	Leland Stanford Junior University, School of Med				80	2							2		1							8
9	Univ of California Medical School, San Francisco				120																	9
10	Univ of Colorado School of Med, Boulder Denver					72						1	2			1						10
11	Yale University School of Medicine, New Haven				1		55						4								4	11
12	*Georgetown University School of Medicine*						9		19										1	1	6	12
13	George Washington University Medical School	1			1		2		40		1		3			1				3	2	13
14	*Howard University School of Medicine*	1		1				1	16	3	1		3		1		6			9		14
15	Emory University School of Medicine	17			1					3	80						2					15
16	University of Georgia Medical Dept, Augusta										53											16
17	Chicago College of Med and Surg Chicago	3	2		2		2		1	2	9	1	188	16	12	4	7	2	4	1	4	17
18	Chicago Hospital College of Medicine, Chicago												53									18
19	Hahnemann Med College and Hosp of Chicago—H						1						26	10	6	5				1		19
20	Jenner Medical College, Chicago												118									20
21	Loyola University School of Medicine, Chicago	2			1	1	2			2	2		133	5	3	1			1		1	21
22	Northwestern University Medical School Chicago			1	3	2							113	7	18	8	1	1		1		22
23	Rush Medical College (University of Chicago)	2	1	1	8	3	1			1	1	4	203	28	38	34	4	1			1	23
24	University of Illinois College of Medicine, Chicago	2			1	1						2	119	2	25	3		1	1			24
25	Indiana University School of Medicine, Indianapolis	1											1	170			1					25
26	State Univ of Iowa College of Medicine Iowa City				2	1						1	3		147	1						26
27	State Univ of Iowa Coll of Homeo Medicine—H														7							27
28	Univ of Kansas School of Med, Lawrence-Rosedale															110						28
29	*University of Louisville Medical Dept Louisville*			2						2			5	10	1	1	51					29
30	Tulane University of Louisiana School of Medicine	32		16						11	9					1		140				30
31	Bowdoin Medical School Brunswick Portland						2								1				35		9	31
32	Johns Hopkins University Medical Dept, Baltimore	6		1	7	5	10		2	3	11	4		10	6	1	8	1	2	74	12	32
33	Univ *of Maryland School of Med & Coll of P & S*	1	1	1	1		8	4	3	4	2			1	1		1		2	86	10	33
34	Boston University School of Medicine—H												1			1			4		33	34
35	College of Physicians and Surgeons, Boston																				51	35
36	Medical School of Harvard University, Boston	2	1		8	9	12	1	3	3	6	2	8	6	4			1	11		148	36
37	Tufts College Medical School Boston	1					15				1		1			1			10		274	37
38	University of Michigan Medical School	1			2		1		2		4	2	11	14	3	3	2				1	38
39	University of Michigan Homeo Med School—H				3			1					1	2	2					1		39
40	Detroit College of Medicine and Surgery, Detroit				1						1			1		1						40
41	University of Minnesota Medical School				3							2	1	1	12					1		41
42	University of Mississippi School of Med Oxford				1					1								1				42
43	*University of Missouri School of Med, Columbia*			1									1			1						43
44	Eclectic Medical University, Kansas City—E															11						44
45	Kansas City College of Med and Surg—F †																					45
46	National University of Arts & Sciences, Med Dept											1	19	1		1	1					46
47	St Louis College of Phys and Surgs St Louis †												8		2	6						47
48	*St Louis University School of Medicine*	1		1	10	1					1		41	7	21	16	1	2		1	1	48
49	Washington University Medical School St Louis			4		2							22	3	2	10						49
50	Lincoln Medical College Lincoln—E														1							50
51	John A Creighton Medical College, Omaha					1									17	6						51
52	University of Nebraska College of Med, Omaha			1	1	1									7	3	1					52
53	Dartmouth Medical School, Hanover				1		1						2						2		10	53
54	Albany Medical College Albany						1														3	54
55	University of Buffalo Dept of Medicine, Buffalo				2											1					1	55
56	Columbia University College of Phys and Surgs		1			2	22				9	1		3	1		1				2	56
57	Cornell University Medical College New York City				2		7		1				1				1	1			2	57
58	Fordham University School of Med New York City						19														8	58
59	Long Island College Hospital, Brooklyn						3														1	59
60	New York Homeo Med Coll and Flower Hosp—H *				1		5												1			60
61	*New York Med Coll and Hospital for Women*—H																					61
62	Univ and Bellevue Hosp Med Coll, New York City				1		15			1	1		1			1					1	62
63	*Syracuse University College of Medicine Syracuse*						1															63
64	Univ of North Carolina Sch of Med Chapel Hill									1	1											64
65	North Carolina Medical College, Charlotte									1												65
66	Leonard Medical School Raleigh	2									1											66
67	Wake Forest College School of Medicine Wake Forest					1																67
68	University of North Dakota School of Medicine																					68
69	Eclectic Medical College Cincinnati—E						1						5	5	1	1	8					69
70	University of Cincinnati College of Medicine				1								1	5			12					70
71	Western Reserve University School of Medicine					1			1			2	3	2	2		1					71
72	Ohio State University College of Med, Columbus									1				1			1					72
73	Ohio State Univ Coll of Homeo Med Columbus—H													1			1					73
74	Univ of Okla Sch of Med, Norman *Oklahoma City*	1		1						1		1						1				74
75	University of Oregon Medical School Portland											1										75
76	Hahnemann Med Coll & Hosp *of Philadelphia*—H						1	3	2						1					1	1	76
77	*Jefferson Medical College of Philadelphia*	3		2	6		16	7		1	1	2	5	1	1	1	1		1	3	11	77
78	Medico-Chirurgical College of Philadelphia				1		2	1	1		1			1		1			1	1	1	78
79	Temple University Dept of Med Philadelphia						2	1												1		79
80	University of Pennsylvania School of Medicine	1			3		5	5	1		3	1	8	4	7			1	1	6	1	80
81	Woman's Medical College of Pennsylvania												1								3	81
82	University of Pittsburgh School of Med Pittsburgh														1							82
83	Medical College of the *State of South Carolina*								1	2	1											83
84	University of South Dakota College of Medicine																					84
85	Lincoln Memorial University Med Dept Knoxville																4					85
86	University of Tennessee College of Med Memphis	2		4						2		1	1				2	7				86
87	Univ of W Tennessee Coll of Med & Surg Memphis	1		3														1				87
88	Meharry Medical College Nashville	20		8					1	7	24		8		1	1	7	10		1		88
89	Vanderbilt University *Medical Department* Nashville	16		6	1	1				8	3		5				3	7				89
90	Baylor University College of Medicine Dallas										1		1									90
91	Fort Worth School of Medicine Fort Worth																	1				91
92	University of Texas Dept of Med, Galveston	1	1	1							1	1		1				2	1			92
93	University of Utah School of Med Salt Lake City											1										93
94	University of Vermont College of Med Burlington						9				1								5		8	94
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

H—Homeopathic E—Eclectic. * Totals exact, distribution approximate. † Figures and distribution approximate.

Marginal number	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		
	Michigan [illegible]	Minnesota [illegible]	Mississippi [illegible]	Missouri [illegible]	Montana [illegible]	Nebraska [illegible]	Nevada [illegible]	New Hampshire [illegible]	New Jersey 341	New Mexico [illegible]	New York 2,113	North Carolina [illegible]	North Dakota [illegible]	Ohio [illegible]	Oklahoma 116	Oregon [illegible]	Pennsylvania [illegible]	Rhode Island [illegible]	South Carolina 131	South Dakota [illegible]	Tennessee 332	Texas [illegible]	Utah [illegible]	Vermont [illegible]	Virginia 291	Washington 109	West Virginia 136	Wisconsin 328	Wyoming 8	Philippines etc 103	Foreign 317	Totals 13,701	Marginal Number
1																																43	1
2			1												1						1	1										43	2
3	2					[illegible]			1	1	1				1					1	[illegible]	7				5		1	1		8	55	3
4		4		4	1	[illegible]							1	[illegible]		1	7			2		2	3	1				5		1	13	176	4
5				1							1											1									5	16	5
6				2	1	1					[illegible]											1	1			1					13	77	6
7														1												1				2	3	32	7
8				1							1					[illegible]								1		4				1	2	100	8
9							1							2		[illegible]							2	1		2					1	129	9
10		1	1			1				1				1								1				1				1		85	10
11		1						1			[illegible]			1				1			1				2							77	11
12	1			1					1					1	1									1						4		60	12
13	1	1						1	2	[illegible]	[illegible]	2		2	1		[illegible]	1			[illegible]				8	1		3		5	11	114	13
14				1					4		4	11			1		[illegible]					7			13						13	111	14
15			[illegible]	2								11							[illegible]		4	2			1		1				6	149	15
16																			2													53	16
17	17	1		[illegible]	5				2		1	1		17	1	1	17	1		2	1	4	1			2	6	16	1	14	13	415	17
18																																63	18
19	6	4		1										4								1			1			6			4	76	19
20																																116	20
21		4	1	4	1				1		[illegible]	1		4			[illegible]	1		1	1	1	1		1		3	10		12	9	228	21
22	[illegible]	12	1	4	1					1	1		[illegible]	[illegible]	[illegible]	2	[illegible]			6	1	2	1		1	10		1			2	247	22
23	13	1		17	[illegible]	1					4		[illegible]	17			[illegible]		1	[illegible]	4	[illegible]	15		2	9		[illegible]		4	0	567	23
24	4	1				1					1				7		1			2			2			3		10			8	213	24
25		1																								1						175	25
26		1																		2								1			3	162	26
27																																7	27
28				[illegible]											1	1																118	28
29		1									1			2	1										3	2	7					118	29
30		1	2	[illegible]								4					1		3		1	6			2			1		8		267	30
31								4			1						1														1	51	31
32	6	1			1	[illegible]			6	1	[illegible]	[illegible]	[illegible]	23	1	4	[illegible]	4	[illegible]		6	[illegible]	1		27	4	3	5			3	359	32
33			1	1				[illegible]	[illegible]		17	1		[illegible]	2		21	4	[illegible]				2		12		3			17	11	208	33
34			1					2				1		2	1		[illegible]		1					2							10	62	34
35									1																						1	53	35
36	2	[illegible]		[illegible]		1		4	5		[illegible]	[illegible]		11	1		[illegible]	10	2		2	7	[illegible]	2	1	3		6			0	357	36
37	1							14	1		[illegible]						6	[illegible]								1				3	8	383	37
38	1	4		3	1	1								[illegible]	1		[illegible]	1	1	3	1	1	1	1		7				6	14	322	38
39	24	2									4			4	1	1										1	1					48	39
40	131													3			1					1				1		1			17	161	40
41	1	[illegible]		1	1	1					1		10	1						3						[illegible]		4			2	265	41
42			[illegible]	1																		1									4	60	42
43						2					1																1			1		85	43
44																																31	44
45				111																												114	45
46				[illegible]																	1				1		1			1		61	46
47				[illegible]																												46	47
48	[illegible]	[illegible]		1	1	3					3			3	2	1	3					5	1			7		8		3	4	254	48
49		1		[illegible]							1	1		1	2							2	2					10			1	125	49
50						1																							1			17	50
51	1	3		1	11						1			1		1				3			1			2		1	1			108	51
52	1					1					1									3									1		3	143	52
53						1		10	2		[illegible]			1				1							1						2	40	53
54											10			1										1								110	54
55											[illegible]			[illegible]																		106	55
56	2	4	2	2				3	[illegible]	1	[illegible]	4		3	1	2	[illegible]	3	2		2	3	8	1	4	2	2	4	1		6	401	56
57						4			[illegible]		117	1					3	1				1		1	1		1	1		1	1	165	57
58									[illegible]		240						2	2												1	1	297	58
59									1		[illegible]	1																		1	5	295	59
60	1								4		[illegible]						3					1		1							3	170	60
61									9		29																					38	61
62			1			1			61		328	2		2				3			1	1	3	1		1				1	2	420	62
63									1		114			1			1								1					3	2	124	63
64									1										4						2							64	64
65												16							2						2							21	65
66											2	2							1													8	66
67												28													2						1	32	67
68		[illegible]											[illegible]																1			33	68
69	1			1		2					2			7	1		4				1					1	6					97	69
70	1	1		1							1			[illegible]			2					1			1		1					94	70
71											2			10			8			2			3		1		3				4	165	71
72		1									1			10			4										2					142	72
73	1										1			29			3											1				36	73
74				1							1				75							1									2	85	74
75																59										12						72	75
76				1					12		3			6			74								2	1					3	111	76
77	1	4	1	5	4	3			35		16	40	2	11		1	275	1	11		2	2	9	1	4	5	7	10		2	27	540	77
78		1							14		5		1				144			1			2		1		1	1		1	1	184	78
79									4		6			2			61							1						1	4	83	79
80		2	2	1	2	2			24		13	26		4			205		4		4	4	5		8	12	5	10		3	18	401	80
81	2							1	1		5	5					22														3	43	81
82														4			110			1							1					117	82
83												1							52								1				1	59	83
84		1															1			15												17	84
85																					1											5	85
86			16	1								3		1							65	12			1	1	2			1		122	86
87				1								3			3						5	2					1					20	87
88			18	8					1			17			3		2		18		37	33			10						20	255	88
89		1	1	4						1	1	1			2				1		71	16				1		1			1	152	89
90														1								41								1		45	90
91																						54										55	91
92			1							1		1			1		1					238			1				1	1	1	255	92
93								4	2		13			1			1	1														22	93
94																							20	37								82	94
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		

Marginal Number	NAME OF COLLEGE	1 161 Alabama	2 11 Arizona	3 91 Arkansas	4 384 California	5 116 Colorado	6 237 Connecticut	7 25 Delaware	8 93 Dist of Col	9 64 Florida	10 244 Georgia	11 34 Idaho	12 1,159 Illinois	13 333 Indiana	14 304 Iowa	15 246 Kansas	16 135 Kentucky	17 165 Louisiana	18 89 Maine	19 200 Maryland	20 615 Massachusetts	Marginal Number
95	Medical College of Virginia, Richmond				1		8		1	1										6		95
96	University of Virginia Dept of Med , Charlottesville	2					2	1	2	1	4			1			2	1		2		96
97	West Virginia Univ School of Med , Morgantown														1							97
98	University of Wisconsin Medical School, Madison											2	7			1	1					98
99	Marquette University School of Medicine, Milwaukee														1							99
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

H —Homeopathic, E —Eclectic * Totals exact, distribution approximate † Figures and distribution approximate

(Continued from page 537)

year, 19 more than last year and 32 more than in 1914 Of all the women matriculants, a smaller percentage were in attendance at the two medical colleges for women, while 529 (86 7 per cent) were matriculated in the 56 coeducational colleges From the two women's colleges there were 29 graduates, while 124 secured their degrees from coeducational colleges This increase of women students in coeducation colleges is not surprising, since in recent years some of the largest and oldest medical schools, such as Columbia, Tulane and the University of Pennsylvania, have thrown open their doors to women

TABLE 9 —MEDICAL COLLEGES

Year	Non sectarian	Homeo pathic	Eclectic	Physio Med	Nonde-script	Total
1850	44	3	4	1		52
1860	53	6	4	2		65
1870	60	8	5	2		75
1880	76	14	8	2		100
1890	106	16	9	2		133
1900	126	22	9	2	1	160
1901	125	22	10	2	1	160
1902	126	20	9	3	2	160
1903	126	20	9	3	2	160
1904	127	19	9	3	2	160
1905	125	19	9	3	2	158
1906	130	19	8	3	2	162
1907	127	18	9	3	2	159
1908	120	18	9	2	2	151
1909	115	15	8	1	1	140
1910	109	12	8	1	1	131
1911	103	12	7			122
1912	101	11	6			118
1913	92	10	5			107
1914	87	10	5			102
1915	83	9	4			96
1916	82	10	3			95
1917	83	9	4			96

Since June 30, 1916, two medical colleges were reestablished and one college (mentioned on page 544) was suspended The present total number of medical colleges is 96—one more than last year

LENGTH OF TERMS

During the last seventeen years there has been a decided lengthening of college terms This has reference to the weeks of actual work exclusive of holidays For two years no colleges have had sessions shorter than 29 weeks, and this year only one college reported a session of 30 weeks Sessions of from 33 to 36 weeks were reported by 77, or 80 2 per cent of all colleges

TUITION AND OTHER FEES

Attention is called to Table 1, on page 534, to the amount charged by the various medical colleges per annum for tuition, matriculation, laboratory and graduation fees for each student In Table 11, 95 of the 96 colleges—from one class C college the figures were not obtained — have been grouped according to the amount of fees charged and according to their classification by the Council on Medical Education in Classes A, B and C Sixteen colleges charge fees of $100 or less per year, fifty-three between $100 and $175, and twenty-six charge above $175 Of the sixteen colleges charging $100 or less, twelve (75 per cent) are listed among Class A (acceptable) colleges[2] by the Council on Medical Education, three are Class B colleges and one is rated in Class C Among the twelve Class A colleges having these low fees are the schools of medicine of the state universities of Colorado, Iowa, Michigan, Mississippi, Missouri, North Dakota, South Dakota, Texas and Utah On the other hand, nine colleges listed by the Council in Class C charge fees of from $100 to $175 per year for each student, and two exact fees between $175 and $200 As shown on page 550, diplomas from Class C colleges are reported as not recognized by thirty-two state licensing boards No intelligent student would knowingly spend his time and money in a low-grade

TABLE 10 —COLLEGE TERMS

Year	23 to 26 weeks		27 to 28 weeks		29 to 30 weeks		31 to 32 weeks		33 to 34 weeks		35 to 36 weeks		Over 36 weeks	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1901	58	36 5	42	26 4	8	5 0	26	16 4	4	2 5	18	11 3	3	1 9
1902	44	28 4	44	28 4	11	7 1	33	21 3	3	1 9	18	11 6	2	1 3
1903	33	21 4	46	29 9	15	9 7	37	24 0	2	1 3	19	12 4	2	1 3
1904	27	16 3	44	26 5	22	13 3	37	22 3	13	7.8	20	12 0	3	1 8
1905	15	9 4	35	21.8	12	7 5	44	27 5	13	8 1	28	23 8	3	1 9
1906	14	8 7	35	21 7	26	16 1	32	19 9	24	14 9	28	17 4	2	1 3
1907	6	3 7	27	16 8	26	16 1	42	26 1	29	18 0	29	18 0	2	1.3
1908	2	1 3	21	13 8	28	18 4	51	33 6	24	15 8	22	14 5	4	2 6
1909	4	2 3	17	11 6	23	16 4	51	34 9	18	12 8	30	20 5	3	2 0
1910	2	1 5	8	6 0	19	14 3	42	31 5	30	22 6	30	22 6	2	1 5
1911			6	5 0	16	13 3	37	30 8	32	26 7	28	23 4	1	0.8
1912	1	0 9	1	0 9	11	9 5	34	29 3	37	31.8	31	26 7	1	0 9
1913			3	2.8	5	4 7	29	27 4	41	38 7	27	25 5	1	0 9
1914			2	2 0	4	4 0	25	24.8	41	40 5	28	27 7	1	1 0
1915			1	1 0	5	5 3	22	23 2	36	37 9	30	31 6	1	1 0
1916*					4	4 2	17	17 9	43	45 3	28	29 5		
1917*					1	1 0	15	15 6	46	47 9	31	32 3		

* Information not obtained from three Class C colleges

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[2] See Classification of Medical Colleges, page 548

Marginal Number	21 Michigan [illegible]	22 Minnesota [illegible]	23 Mississippi [illegible]	24 Missouri [illegible]	25 Montana [illegible]	26 Nebraska [illegible]	27 Nevada [illegible]	28 New Hampshire [illegible]	29 New Jersey [illegible]	30 New Mexico [illegible]	31 New York [illegible]	32 North Carolina [illegible]	33 North Dakota [illegible]	34 Ohio [illegible]	35 Oklahoma 116	36 Oregon [illegible]
95			1						1		4	4		2	1	
96			1						1			[illegible]				
97																
98	1	[illegible]			2	2					2		1			
99	1	4												1		
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36

Marginal Number	37 Pennsylvania [illegible]	38 Rhode Island [illegible]	39 South Carolina 124	40 South Dakota [illegible]	41 Tennessee [illegible]	42 Texas [illegible]	43 Utah [illegible]	44 Vermont [illegible]	45 Virginia 291	46 Washington 100	47 West Virginia [illegible]	48 Wisconsin [illegible]	49 Wyoming 8	50 Philippines etc [illegible]	51 Foreign [illegible]	Totals 13,764	Marginal Number
95	[illegible]	1	2			1			116		14			3		206	95
96	[illegible]		4		[illegible]	1			61		4				1	108	96
97	1										[illegible]			2		34	97
98				1	1						1	109				132	98
99												50				57	99
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		

college the diplomas of which are not recognized by many states[3] when in the same time and for even less money he could attend one of the best-equipped colleges, the diplomas of which are recognized everywhere Although fifty colleges listed in Class A charge fees ranging from $150 to $275 per year for each student, the actual expense for teaching that student in these colleges amounts to from two or three to several times these sums In fact, accurate data secured from eighty-two medical colleges show that the average amount received each year from the individual student was $150, while the average amount actually expended in the training of that student for a year was $419[1] And among these eighty-two colleges were several which still apparently made profits from teaching medical students or which paid all expenses, including rents, or even erected new buildings which are being paid for out of the income from students' fees[1]

TABLE 11—College Fees

Total Fees*	Number of Colleges			
	Class A	Class B	Class C	Total
$50 or less	3	2		5
50 to $75	5	1	1	7
75 to 100	4			4
100 to 125	8	4	1	13
125 to 150	9	1	6	16
150 to 175	18	4	2	24
175 to 200	12	1	2	15
200 or above	10	1		11
Totals	69	14	12	95†

* Based on the latest classification of medical colleges prepared by the Council on Medical Education (see page 548)

† Information not obtained for one Class C college

SCHOLARSHIPS IN MEDICAL SCHOOLS

As evidence that provision is being made for worthy students, regardless of their financial status, 287 scholarships are reported this year in the following thirty-eight medical schools

University of Alabama School of Medicine Mobile	66
Hahnemann Medical College of the Pacific, San Francisco	1
University of California Medical School,* San Francisco	3
University of Colorado School of Medicine * Boulder	1
Yale University School of Medicine New Haven Conn	2
Hahnemann Medical College and Hospital of Chicago*	6
Loyola University School of Medicine, Chicago	3
Rush Medical College Chicago	7
University of Illinois College of Medicine Chicago	7
Indiana University School of Medicine Indianapolis	12
Johns Hopkins University Medical Department Baltimore	6
University of Maryland School of Medicine * Baltimore	6
Medical School of Harvard University * Boston	52
Detroit College of Medicine and Surgery	6
University of Minnesota Medical School * Minneapolis	1
Washington University Medical School St Louis	4
Dartmouth Medical School Hanover N H	2
Albany Medical College Albany N Y	4
New York Medical College and Hospital for Women New York City	2
University and Bellevue Hospital Medical College New York City	1
University of Buffalo Department of Medicine*	1
University of North Carolina School of Medicine Chapel Hill	1
University of Cincinnati College of Medicine	12
Western Reserve University School of Medicine Cleveland	1
University of Oregon Department of Medicine * Portland	3
Hahnemann Medical College and Hospital of Philadelphia*	12
Jefferson Medical College of Philadelphia	1
Temple University Department of Medicine Philadelphia	3
University of Pennsylvania School of Medicine * Philadelphia	3
*Woman's Medical College of Pennsylvania * Philadelphia*	15
Medical College of the State of South Carolina Charleston	8
University of Tennessee College of Medicine, Memphis	1
Vanderbilt University Medical Department Nashville Tenn	4
Baylor University College of Medicine Dallas Tex	3
University of Texas Department of Medicine * Galveston	1
Medical College of Virginia Richmond	15
University of Virginia Department of Medicine Charlottesville	2
West Virginia University School of Medicine Morgantown	8
Total in 38 medical schools	287

* Have loan funds also

LOAN FUNDS

The colleges marked by an asterisk (*) also have loan funds for deserving but needy students Such funds are available also at the following medical schools

Leland Stanford Jr University School of Medicine San Francisco Cal
College of Medical Evangelists Loma Linda Cal
Yale University School of Medicine, New Haven Conn
Howard University School of Medicine Washington D C
University of Kansas School of Medicine Lawrence Kan
Tulane University of Louisiana School of Medicine New Orleans La.
University of Missouri School of Medicine Columbia Mo
University of Nebraska College of Medicine Omaha Neb
University of North Dakota School of Medicine University N D
University of Wisconsin Medical School Madison Wis.

COLLEGES, STUDENTS AND GRADUATES BY STATES

Illinois formerly had the largest number of medical colleges, but for the last two years the first place is held by New York, where there are ten colleges Illinois has eight, California and Missouri each has seven and Pennsylvania has six colleges Of Class C colleges, however, Missouri leads with 4, and California and Illinois each has 2 For the last two years New York has had the largest number of students enrolled, this year having 2,223, followed by Illinois with 1,802 and Pennsylvania with 1,411 In

(Continued on page 544)

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[3] See also The Journal, April 14 1917 page 1112, Table D which shows in what states diplomas granted by various colleges are not recognized as an acceptable qualification for the license to practice.

TABLE 3—MEDICAL STUDENTS SHOWN BY CLASSES

Name of College	Enrolled During 1916-17				
	1st Yr	2d Yr	3d Yr	4th Yr	Total
University of Alabama School of Medicine	8	5	7	23	43
Univ of Arkansas Medical Dept Little Rock	5	6	17	15	43
College of Medical Evangelists Loma Linda	17	3	22	13	55
College of Phys and Surgs, Los Angeles	21	38	28	49	136
Oakland College of Med and Surg., Oakland	4	4	4	4	16
College of Phys and Surgs, San Francisco	30	11	25	11	77
Hahnemann Med Coll of the Pacific—H			14	18	32
Leland Stanford Junior Univ School of Med	34	19	20	27	100
University of California Medical School	48	30	24	27	129
University of Colorado School of Medicine	25	29	10	21	85
Yale University School of Med, New Haven	32	25	9	11	77
Georgetown University School of Medicine	17	11	17	15	60
George Washington University Medical School	47	15	15	37	114
Howard *University School of Medicine*	34	26	32	19	111
Emory University School of Medicine Atlanta	33	27	23	66	149
University of Georgia Medical Department	28	10	6	11	55
Chicago College of Medicine and Surgery	66	43	89	217	415
Chicago Hospital College of Medicine	10	12	11	20	53
Hahnemann Medical College and Hospital—H	11	18	16	31	76
Jenner Medical College, Chicago	45		45	28	118
Loyola University School of Medicine Chicago	47	33	47	101	228
Northwestern University Med School Chicago	63	71	67	46	247
Rush Medical College Chicago	142	142	139	144	567
University of Illinois College of Medicine	89	47	27	50	213
Indiana University School of Medicine	68	33	34	40	175
State Univ of Iowa Coll of Med Iowa City	59	49	33	21	162
State Univ of Iowa Coll of Homeo Med Iowa City—H	2	1	3	1	7
University of Kansas School of Medicine	48	34	17	19	118
University of Louisville Medical Department	21	16	12	69	118
Tulane Univ of Louisiana School of Medicine	94	61	58	54	267
Bowdoin Medical School Brunswick Portland	10	15	19	10	54
Johns Hopkins University Medical Dept	90	90	87	92	359
University of Maryland School of Medicine and College of Physicians and Surgeons	79	56	61	102	298
Boston University School of Medicine—H	13	10	11	28	62
College of Phys and Surgs Boston	23	8	11	11	53
Medical School of Harvard University	109	87	93	68	357
Tufts College Medical School Boston	105	121	74	83	383
Univ of Michigan Med School, Ann Arbor	117	73	70	62	322
Univ of Michigan Homeo Med School—H	10	11	13	14	48
Detroit College of Medicine and Surgery	46	29	22	64	161
University of Minnesota Medical School	75	76	68	46	265
University of Mississippi Dept of Medicine	29	31			60
University of Missouri School of Medicine	49	36			85
Eclectic Medical University, Kansas City—E *	4	6	10	11	31
Kansas City College of Med and Surg—E †	22	30	40	22	114
National Univ of Arts and Sciences Med Dept			26	38	64
St Louis Coll of Phys & Surgs, St. Louis*	10	10	15	11	46
St Louis University School of Medicine	83	68	53	50	254
Washington University Med School St Louis	36	23	34	32	125
Lincoln Medical College, Lincoln—E	4	6	3	4	17
John A Creighton Medical College	25	23	16	44	108
University of Nebraska College of Medicine	58	40	27	18	143
Dartmouth Medical School Hanover	20	20			40
Albany Medical College, Albany	33	14	21	42	110
Univ of Buffalo Dept of Medicine, Buffalo	66	41	29	60	196
Columbia Univ Coll of Phys and Surgs	147	130	118	96	491
Cornell Univ Medical College New York City	66	39	32	28	165
Fordham University School of Medicine	104	79	65	49	297
Long Island College Hospital Brooklyn	107	60	49	79	295
New York Homeopathic Medical College and Flower Hospital—H	44	22	47	57	170
New York Med Coll & Hosp for Women—H	6	16	4	12	38
Univ & Bellevue Hosp Med Coll N Y City	167	102	95	65	429
Syracuse University College of Medicine	44	26	24	30	124
University of North Carolina School of Med	30	34	0	0	64
North Carolina Medical College, Charlotte		2	1	18	21
Leonard Medical School, Raleigh	6	2			8
Wake Forest College School of Medicine	15	17			32
University of North Dakota School of Medicine	18	15			33
Eclectic Medical College Cincinnati—E	20	22	24	31	97
University of Cincinnati College of Medicine	37	21	22	14	94
Western Reserve University School of Medicine	53	37	42	33	165
Ohio State University College of Medicine	31	17	26	68	142
Ohio State Univ College of Homeo Med—H	2	10	15	9	36
University of Oklahoma School of Medicine	27	21	13	24	85
University of Oregon Med School Portland	16	23	21	12	72
Hahnemann Med Coll & Hosp of Phila.—H	31	32	10	38	111
Jefferson Medical College of Philadelphia	179	115	105	141	540
Medico Chirurgical College of Philadelphia	39	54		91	184
Temple University Dept of Med, Philadelphia	13	17	17	36	83
University of Pennsylvania School of Medicine	118	77	133	73	401
Woman's Medical College of Pennsylvania	10	8	7	18	43
University of Pittsburgh School of Medicine	42	31	25	19	117
Medical Coll of the State of South Carolina	14	10	10	25	59
University of South Dakota College of Med	12	5			17
Lincoln Memorial University Medical Dept				5	5
University of Tennessee College of Medicine	23	14	22	63	122
Univ of West Tennessee Coll of Med & Surg	5	4	6	5	20
Meharry Medical College, Nashville	38	36	79	102	255
Vanderbilt University Medical Dept, Nashville	29	25	21	77	152
Baylor University College of Medicine Dallas	11	10	13	11	45
Fort Worth School of Medicine	19	13	6	17	55
University of Texas Department of Medicine	95	64	45	51	255
University of Utah School of Medicine	15	7			22
University of Vermont College of Medicine	23	20	21	18	82
Medical College of Virginia Richmond	31	28	42	105	206
University of Virginia Department of Medicine	30	30	25	23	108
West Virginia University School of Medicine	20	14	0	0	34
University of Wisconsin Medical School	79	53			132
Marquette University School of Medicine	27	12	7	11	57
Totals for 1917	4107	3117	2866	3674	13764
Totals for 1916	3582	3094	3559	3727	14022
Totals for 1915	3373	3919	3675	3864	14891

H—Homeopathic, E—Eclectic   * Totals exact distribution approximate   † Total and distribution approximate

TABLE 4—AVERAGE AGE OF GRADUATES OF 1917

GROUP 1—ADMISSION REQUIREMENTS—1913—A HIGH SCHOOL EDUCATION

Colleges	Number of Graduates at Various Ages																Total Students	Total Years	Aver Age
	Under 21	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	Over 35			
University of Alabama		1	2	1	3	6	2	1		2								18	447	24 8
University of Arkansas				3	1	3	1		1		1	1				1	3	15	436	29 1
College of Medical Evangelists			1	1			3	1	1		1		1	1	1		2	13	386	29 7
Oakland College of Med and Surg		1			1					1							1	4	122	30 5
Coll of Phys & Surg, San Francisco					2					1	3						1	7	203	29 0
Hahnemann Med Coll of the Pacific				1	3	3	2	2	1	1			1	1	1		2	18	524	29 1
George Washington University			7	9	4	3	6	3	1	1	1				1	2	3	41	1 071	26 1
Emory University School of Medicine		1	8	9	7	10	4	3	6	6	5	1			2		1	63	1,651	26 2
University of Georgia			2	1	1	3		2	1					1				11	281	25 5
Hahnemann Chicago			1	2	3	3	2	2	2	1	2	2	3	1		4	2	30	885	29 5
Jenner Medical College				1	2	1	3	3					1			2	1	14	395	28 2
Loyola University		1	2	3	10	8	8	7	2	4	5	4	5	6	5	4	9	83	2,420	29 1
University of Louisville			3	7	8	12	6	9	6		3	2	2	1		1	5	65	1 761	27 1
University of Maryland		1	9	17	15	12	7	5	3	2	3	3	3				2	82	2,091	25 5
Boston University		2		2	4	3	4	3	1			1		2		2		24	639	26 6
Tufts College		1	8	16	9	12	11	7	2	3		3	1	2			1	76	1,932	25 4
Detroit College of Med and Surg		1	3	12	13	12	8	2	5	1	1	1	1	1		1	1	63	1,605	25 5
Eclectic Medical University											1			1		1	1	4	134	33 5
Kansas City College of Med and Surg					1		1		2			2			1	2	6	15	504	33 6
National Univ of Arts and Sciences			1	4	5	5	6	6	3		1	1	1	1	2	1		37	990	26 7
Creighton Medical College		3	4	9	7	3	4	3	4	4	1		1					43	1,076	25 0
Albany Medical College			4	10	3	8	7	7	1		1	1						42	1,050	25 0
University of Buffalo	1	3	5	15	11	6	3	3	4	1		4	2				2	60	1 525	25 4
Long Island College Hospital		6	12	7	9	13	11	4	1	4	1		1	1				70	1,725	24 6
North Carolina Medical College		1	1	1	3	2	1	1	2	3		2						17	446	26 2
Eclectic Medical College			2	2	2	5	9	2	2		3		1				1	29	771	26 6
Ohio State University College of Med		1	5	6	12	13	5	4	11	2	3	1		2				65	1,673	25 7
Ohio State University Homeopathic				2	1		1	2			1						1	8	219	27 4
University of Oklahoma			1	4	3	4	1	1			1	1	3			1	4	24	679	28.3
Jefferson Medical College		1	13	18	29	28	12	13	8	7	7		1	1	1		1	140	3 553	25 4

TABLE [illegible]—AVERAGE AGE OF GRADUATES OF 1917—(Concluded)

GROUP 1—ADMISSION REQUIREMENTS—1913—A HIGH SCHOOL EDUCATION

Colleges	Number of Graduates at Various Ages																	Total Students	Total Years	Average Age
	Under 21	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	Over 35			
Medico-Chirurgical Coll. of Philadelphia		1	7	9	19	12	12	8	8	3	3		1	2				85	2 165	25.5
Temple University				1	2	4	1	1	5	1	1		1	1		1		19	523	27.5
Medical College of South Carolina		1	1	1	3	7	5	1	1		2	2						24	620	25.8
Lincoln Memorial University						2					1						1	4	120	30.0
University of Tennessee			8		13	6	6	4	6	4	1	3	1	1	1		4	58	1 570	27.1
University of West Tennessee								1				1	1		1			4	124	31.0
Meharry Medical College				4	[illegible]	[illegible]	1	1	11	1	7	8	3	1	3		5	98	2,763	28.2
Vanderbilt University		6	17	11	21	7	4	[illegible]		1	1	1				1		71	1 708	24.0
Fort Worth School of Medicine		1	2	1	1		1	1	1	1	2	1		1				13	346	26.6
Medical College of Virginia		2	4	8	20	22	8	10	9	6	3	2		1				95	2 433	25.6
Marquette University				1	2	4	1	1		1							2	12	331	27.6
Total, 41 colleges	1	35	128	204	260	249	181	141	113	73	66	48	35	29	19	24	62	1 668	43 987	26.4
Percentage	0.06	2.1	7.6	12.2	15.6	14.9	10.8	8.4	6.8	4.3	3.9	2.9	2.1	1.7	1.1	1.4	3.7			

GROUP 2—ADMISSION REQUIREMENTS—1913—ONE YEAR OF COLLEGE WORK

Howard University					1	2	1	3	2	1	1		1				1	13	365	28.1
University of Illinois			1	6	4	4	3	17	4	5		2			2			49	1 322	27.0
Tulane University of Louisiana			3	11	[illegible]	[illegible]	4	4		1	3	1		1				52	1 337	25.7
Bowdoin Medical School					1	1	4	1		1							2	10	288	28.8
St. Louis University				[illegible]	4	11	10	[illegible]	4	1							1	41	1 066	26.0
Fordham University			1		10	7	[illegible]	3		3	3	1		1	1		2	[illegible]	1,208	[illegible]
University and Bellevue Hospital			6	11	9	[illegible]	8	1		[illegible]					1	1	2	64	1 603	25.1
University of Oregon					1	1	1	5			2						2	12	347	28.9
Hahnemann, Philadelphia		1	7	6	4		4	[illegible]		2	1							27	[illegible]	24.9
Woman's Med. Coll. of Pennsylvania			1	1	4	1	1	1	2		1				3	1	1	17	481	28.3
Baylor University			1			3		4	2					1				11	294	26.7
University of Texas			1	4	7	6	4	8	6	10	2	2						50	1,332	26.6
University of Vermont				2	4		4	2		1	3			2				18	485	26.9
University of Virginia			1	5	4	5	3	3			1		1					23	585	25.4
Total, 14 colleges		1	22	56	76	59	54	57	37	27	22	6	2	5	7	4	11	446	11 738	26.3
Percentage		0.2	4.9	12.6	17.0	13.2	12.1	12.8	8.3	6.1	4.9	1.3	0.5	1.1	1.6	0.9	2.5			

GROUP 3—ADMISSION REQUIREMENTS—1913—TWO OR MORE YEARS OF COLLEGE WORK

Leland Stanford Junior						3	2	5	7	3	1			1			1	23	644	28.0
University of California				1	2	6	7	4	3		1			1			1	26	695	26.7
University of Colorado				1	4	7	2	1	2			2	1	1				21	556	26.5
Yale University					1	4	2	2		1								10	259	25.9
Georgetown University				2	1	3	2		4					1				13	342	26.3
Northwestern University			2	2	5	12	3	3	3	5	2	1	1	3				42	1 120	26.7
Rush Medical College				5	18	25	21	19	6	6	4	4	5	3	1		4	122	3 292	27.0
Indiana University			1		3	5	7	6	3	5	1	2	1		2		1	37	1 025	27.7
State University of Iowa					1	2	7	3	3	2					1		1	20	550	27.5
State University of Iowa, Homeopathic				1														1	23	23.0
University of Kansas			1	1	2	5	4	1	2	1		1					1	19	501	26.4
Johns Hopkins University					7	25	18	18	9	2	3		2	1	1	1	2	89	2 394	26.9
Medical School of Harvard University				1	7	16	13	11	11	2	2		3				1	67	1 784	26.6
University of Michigan Medical School				2	11	14	10	10	7	5			2				1	62	1 632	26.3
University of Minnesota					1	6	3	3	2	1								16	418	26.1
Washington University			2	2	9	6	5	3	2				1	1				31	788	25.4
University of Nebraska				1		6	5	1	1		1	1		1				17	452	26.6
Columbia University			3	14	12	18	12	8	9	5	1	4	3			1		90	2,336	26.0
Cornell University			1	1	2	7	9	3	1	2				1				27	702	26.0
Syracuse University			2	3	2	8	9	3			1						1	29	753	26.0
University of Cincinnati				1	2	3	1	2	2			1	1				1	14	382	27.3
Western Reserve University					2	6	4	9	3	1	3	1	2				1	32	881	27.5
University of Pennsylvania				5	5	23	15	6	4	6	1	1	1	2	2		2	73	1 949	26.7
University of Pittsburgh				1	7	4	2	2		1	1		1		1			20	522	26.1
Total, 24 colleges			12	44	104	214	163	123	84	48	22	19	24	16	8	2	18	901	24 000	26.6
Percentages			1.3	4.9	11.5	23.8	18.1	13.7	9.3	5.3	2.4	2.1	2.7	1.8	0.9	0.2	2.0			
Grand totals (79 colleges)	1	36	162	304	440	522	398	321	234	148	110	73	61	50	34	30	91	3 015	79 725	26.4
Percentage of all graduates at each age	0.03	1.2	5.4	10.1	14.6	17.3	13.2	10.6	7.8	4.9	3.6	2.4	2.0	1.6	1.1	1.0	3.0			

This table shows the average ages of the graduates of the 70 medical colleges from which information in regard to age was obtained. The colleges are arranged in three groups, according to the entrance requirements in 1913, at the time these graduates matriculated. Group 1 is those which required a high school education; Group 2 those which required one year of college work, and Group 3 those which required two or more years of college work. At the bottom of each group table the totals and percentages of graduates of each age are given. The grand totals and the percentages of all graduates of the 79 colleges are given under the table for Group 3. It would be expected that the average age of graduates under Groups 2 and 3 would be one and two years higher respectively than that of Group 1. That such is not the case is due to the fact that more students of advanced age matriculated in the 41 medical colleges in Group 1. Note that 62 students in the colleges of this group were over 35 years of age at the time they graduated, one college having nine such graduates. In fact, of the 62, 18 were 40 years or over, the oldest being 53. The two highest averages, 33.5 and 33.6, were obtained by two colleges of Kansas City, neither of which is reported as recognized by the Missouri State Board of Health.

The lowest average age of all graduates in Group 1 was 24.0 for Vanderbilt University, Nashville; in Group 2 the lowest average age was 24.9 for Hahnemann Medical College of Philadelphia, and in Group 3, omitting a college which had only one graduate, the lowest average was 25.4, obtained by the Washington University, St. Louis. In this comparison we find the expected differences, due undoubtedly to differences in entrance requirements. In Group 1 the largest number of students, 260 (15.6 per cent.), were 24 years of age. In Group 2 likewise the largest number, 76 (17 per cent.), were 24 years of age, while in Group 3 the largest number, 214 (23.8 per cent.), were 25 years of age. Higher standards for admission clearly affect the minimum age at graduation, but the most important factor in high averages is the late time when many students enter on the study of medicine.

(Continued from page 541)

regard to the graduates, Illinois leads with 531, followed by New York with 485, Pennsylvania with 401, and Tennessee with 239

Table 13 shows the students and graduates of the last five years grouped according to the rank of the colleges in the classification of the Council on Medical Education Note that during the five years the percentage of students enrolled in Class A colleges has increased from 65 4 to 82 2 and that the total attendance of 1917 shows an increase over the total for the

TABLE 12—MEDICAL COLLEGES STUDENTS AND GRADUATES BY STATES

State	College		Students		Graduates		Graduates with B S or A B
	Total	Class C	Men	Women	Men	Women	
Alabama	1		43		18		1
Arkansas	1		43		15		1
California	7	2	477	68	116	25	43
Colorado	1		81	4	20	1	16
Connecticut	1		74	8	10		9
Dist of Columbia	3		276	9	66	1	17
Georgia	2		204		74		6
Illinois	8	2	1 562	115	4 7	34	158
Indiana	1		109	6	7		29
Iowa	2		165	4	21		8
Kansas	1		110	8	1		15
Kentucky	1		118		66		4
Louisiana	1		250	17	51	1	18
Maine	1		51		20		4
Maryland	2		615	42	165	9	74
Massachusetts	4	1	503	46	165	19	102
Michigan	8		511	20	170	4	56
Minnesota	1		[illegible]	9	17		18
Mississippi	1		60				
Missouri	7	4	692	27	144	9	97
Nebraska	3	1	261	7	61	2	20
New Hampshire	1		40				
New York	10	1	2,228	2	402	28	188
North Carolina	3		125		17		
North Dakota	1		82	1			
Ohio	5		510	24	144	4	46
Oklahoma	1		81	4	24		2
Oregon	1		69	3	11	1	4
Pennsylvania	6		1 411	68	881	20	112
South Carolina	1		59		24		8
South Dakota	1		16	1			
Tennessee	4	1	516	8	236	8	91
Texas	3		837	18	75	8	13
Utah	1		22				
Vermont	1		82		18		8
Virginia	2		814		119		18
West Virginia	1		86	1			
Wisconsin	2		181	8	13		10
Totals	96*	12	13 151	618	3,226	153	1 0[illegible]9

TABLE 13—STUDENTS AND GRADUATES ACCORDING TO CLASSIFICATION

Year	Students						Graduates					
	Colleges Rated in Class						Colleges Rated in Class					
	A	%	B	%	C	%	A	%	B	%	C	%
1913	11 122	65 4	4 158	24 4	1 785	10.2	2 529	63 8	1 050	26	[illegible]	[illegible]
1914	12 880	74 7	2,888	17 2	1 428	8 1	2 676	73 1	68	[illegible]	282	7 8
1915	11 914	76 0	2 668	17 9	909	6 1	2 629	74 4	68	[illegible]	219	6.2
1916	11 162	79 6	2 087	14 9	778	5 5	2 620	74 7	63	[illegible]	186	5.5
1917	11,817	82 2	1 761	12.8	686	5 0	2 577	76 3	6	[illegible]	154	4 5

two previous years Note on the c hand, that
the percentage of students in Class Rges has been
reduced from 24 4 to 12 8 and in Cl colleges from
10 2 to 5 0 Of graduates, also percentage in
Class A colleges shows an increan Class B col-
leges it is nearly at a standstill wn Class C col-
leges there has been a decrease *Icvident, there-*
fore that the reduction in the to umbers of stu-
dents and graduates has been in t wer grade col-
leges while the numbers of studen d graduates in
the higher grade colleges are actual reasing

COLLEGE NOTES

College Closed—One medical college, the Southwest School of Medicine and Hospital of Kansas City, Mo, was closed permanently in 1916

Colleges Reestablished—Two medical colleges have been reestablished The Eclectic Medical University of Kansas City, which had no classes during 1915-16, was reopened in 1916 The St Louis College of Physicians and Surgeons was merged in 1915 with the Medical Department of the National University of Arts and Sciences, but in 1916 was reestablished as a separate institution

Special Items Concerning Medical Education

Alabama—The city commissioners of Mobile appropriated $10 000 for the erection of a modern operating room at the City Hospital for the use of the University of Alabama School of Medicine

Arkansas—The Arkansas General Assembly appropriated $52 708 for the Medical Department of the University of Arkansas for the biennium ending June 30 1919, of which $17 258 is for maintenance and improvement Another bill provided for the sale of certain lands, to secure a sum estimated at $150,000 for the erection of a new state hospital in Little Rock to be used as the teaching hospital of the Medical Department of the University of Arkansas and be controlled by the trustees of the university The new Isaac Folsom Clinic building has been completed at a cost of $55,000

California—The College of Medical Evangelists received $55 218 for the purchase of ground and the erection of a hospital in Los Angeles

——Leland Stanford Junior Universit School of Medicine
has adopted the quarter system to b in Oct. 1 1917, thus
providing a continuous session, any three quarters of which
will constitute a college year The Stanford University
Hospital has been erected at a cost of approximately $500 000

——The University of California dical School received
sums amounting to $43 493 to furn and equip the new
University Hospital The institution ceived from Mrs A. F
Morrison $1 500 for the purchase of op [illegible] library

Connecticut.—Yale University Sc ol of Medicine received
$100 000 from Mrs E. H Harriman establish a department
of orthopedics to be shared with University Department
of Health Pledges amounting to 0 have been made
for the endowment fund of the School Medicine The uni-
versity also received $200 000 for the equipment of the Yale
Mobile Hospital Unit, and other amounting to $6 000
The Brady Memorial Laboratory ted to Yale Uni-
versity as a memorial to the late Anthony N Brady has been
completed and equipped at a cost ro tely $175,000
It is situated on the grounds ospital, and
will house the departments , patho-
logic chemistry obstetrics dicine

Georgia—An outpatient has been
completed on the campus of ool of
Medicine Atlanta Buildin y and
chem costing, respective 4,000,
have en erected on the mai rsity

ois—The University o
secured the fund of $2
Foundation the General
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will be u ablish un
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building
Rush M b
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Maryl
receive

$250 000 will be used for the departments of pathology, physical chemistry and several minor branches of the laboratory department and $100 000 for the department of pediatrics The School of Hygiene and Public Health of the university, which will be opened in October received $70 000 for maintenance from the Rockefeller Foundation A bequest of $500 000 to the Johns Hopkins Hospital for the erection of the Brady Urological Institute, was provided by the will of James Buchanan Brady

——The Maryland legislature at its last session appropriated $25 000 a year for two years and ordered the payment of $50 000 to the medical school of the University of Maryland which amount had been appropriated by a previous legislature but never paid The school has acquired property on West Lombard Street on which a central outdoor obstetrical clinic will be established

Nebraska—The University of Nebraska College of Medicine received from the state legislature an appropriation of $350 000 for the next biennium Part of the amount will be used in the erection of another laboratory building an exact duplicate of the one now occupied The University Hospital, the teaching institution of the University of Nebraska College of Medicine which with the equipment cost approximately $210 000 has been completed

New York.—The Albany Medical College received $10 000 from members of the board of trustees and other donors

——Columbia University College of Physicians and Surgeons received from Mrs Clara L McMurtry in memory of her son Dr Charles Wood McMurtry the entire furnishings of his library valued at $7 000 The school also received a donation of 600 volumes valued at $3 000 from Dr Frederic S Lee and a valuable collection of specimens and medical apparatus from Dr Herbert N Gorham The institution received $1 000 from Willard V King to be applied to the medical school removal and rebuilding

——A bequest of $500 000 for the endowment fund of Cornell University Medical College was provided by the will of Col Hazard Payne

——The faculty of the Long Island College Hospital has voted to make the institution coeducational Friends of the late Dr John A McCorkle have added to his bequest of $50 000 the sum of $100 000 which is to be known as the McCorkle Memorial Fund the income from which may be used as the board of the Long Island College Hospital may direct The school also received $20 000 by the will of Francis S C A Ripley

——The New York Medical College and Hospital for Women received $3 000 from Mr W Dominick for the endowment of the library

——The University of Buffalo Department of Medicine was given $2,000 by Dr Clara A March to be known as the Frank Miller March Memorial Fund and loaned to needy students

Ohio—The residuary estate of Mrs Anna Hunt Heady, estimated at $100 000 was bequeathed to the University of Cincinnati to endow a chair in the medical department in the name of Dr James F Heady

——Western Reserve University School of Medicine and two allied hospitals have been given land valued at $350 000 The School of Medicine also received $300 000 for the erection of new buildings on this land

Oklahoma—The state legislature at its last session appropriated $200 000 for the building and equipment of a hospital at Oklahoma City to be under the supervision of the School of Medicine of the University of Oklahoma

Oregon—The University of Oregon Department of Medicine received an appropriation of $100,000 from the state legislature

Pennsylvania—The Hahnemann Medical College and Hospital of Philadelphia received $40 000 by the will of Marcus N Darr, and $5,000 by the will of Dr L H Adams for its endowment fund The school also received $20,000 from an anonymous donor, to be used in the assistance of needy students, and two donations of $1,000 each for laboratory apparatus By the will of the late Dr Louis L Posey, his library consisting of about 2 000 volumes was given to the institution

——The Jefferson Medical College of Philadelphia received gifts amounting approximately, to $70,000 for its endowment fund.

——The Woman's Medical College of Pennsylvania has secured an additional $150 000 for its endowment fund Of this amount, about $50 000 was given for scholarship endowments, the rest being unrestricted

Tennessee—Meharry Medical College received $7,500 from the Carnegie Foundation for the Advancement of Teaching, and a similar amount from the General Education Board for general maintenance It received also $10 000 from J W Anderson and his wife for the erection of the new Anderson anatomic hall

Virginia—Citizens of Richmond subscribed $225 000 for the erection of a hospital for colored patients, and Major James H Dooley gave $40 000 to build a hospital for contagious diseases The buildings now under construction are to be a part of the Memorial Hospital, the teaching hospital of the Medical College of Virginia

——A new wing to the University of Virginia Hospital has been opened Besides additional beds it contains the laboratory of clinical diagnosis, new quarters for the outpatient department and additional rooms for special medical and surgical service

Wisconsin—Marquette University School of Medicine has been offered one third of a million dollars by the Carnegie Foundation for the Advancement of Teaching on condition that the university raise the other two thirds of a million within a year The fund is to be used in the development of the School of Medicine

Scholarships and Fellowships in Medical Schools

Harvard University Medical School in cooperation with the Boston Dispensary, offers a fellowship to graduates in medicine who desire to pursue a course of study leading to the certificate of public health in the school for health officers, or to the degree of Doctor of Public Health in the department of preventive medicine and hygiene Fellows are required to give half their time to the treatment and supervision of the sick in their homes in a district of the city of Boston, and half their time to study or research at the medical school The stipend is $750 a year, and appointments are for one or two years

At the University of Minnesota Medical School, fellowships in ophthalmology and otolaryngology have been established by Dr Frank C Todd and Dr Frank E Burch. They provide a stipend of $500 the first year, $750 the second year and $1 000 the third year Such fellows are to spend half their time in the private clinic of Dr Todd or Dr Burch, and the other half in laboratory and clinical work and in pursuit of certain courses for specialists in ophthalmology and otolaryngology at the university For work done in these private clinics credit will be given toward the degree granted by the university in the course in ophthalmology and otolaryngology given to accepted doctors of medicine, covering a period of three years

In the College of Physicians and Surgeons of Columbia University under the special George Blumenthal scholarship of $900 distinct additions have been made to the clinical knowledge of diabetes Three undergraduate scholarships have also been established during the last two years, and a fourth will be added during this year The students who receive these scholarships work as special assistants in the laboratory and are used as assistants in laboratory teaching

Funds for Research

The University of California Medical School has received gifts amounting to $700 for scientific research in the department of biochemistry

The Hunterian Laboratory of the Johns Hopkins University Medical Department, made possible through the munificence of the Rockefeller Foundation, has been completed The building cost about $115,000 and the scientific equipment many thousands more This laboratory will be used by men engaged in research work It is connected by tunnels with the medical school and the physiologic building It contains the medical library, the department of art as applied to medicine, the Carnegie Embryological Institute a department for clinical medicine and children's diseases, and the pathologic department.

Washington University Medical School has received $1 000 000 from the General Education Board to finance research in surgery, medicine and pediatrics

The Vanderbilt Clinic of the College of Physicians and Surgeons of Columbia University received $10 000 from the East River Homes Foundation of New York for tuberculosis work The college also received $5,000 from Clarence H Mackay to be added to the fund for surgical research, and $2,500 from Mrs Frederick S Coolidge for maintenance of the Coolidge Research Fellowship in Medicine

EDUCATION PRELIMINARY TO THE STUDY OF MEDICINE

Preliminary Report of a Special Committee[1] of the Council on Medical Education, the Association of American Medical Colleges and the Association of American Universities, appointed Feb 5, 1917

I High School Requirements

(*a*) For admission to the two-year premedical college course, students shall have completed a four-year course of at least fourteen (fifteen after Jan 1, 1920) units in a standard accredited high school or other institution of standard secondary school grade, or have its equivalent as demonstrated by examinations conducted by the College Entrance Examination Board, or by the authorized examiner of a standard college or university which has been approved by the Council on Medical Education Unless all the entrance units are obtained by examination, a detailed statement of attendance at the secondary school, and a transcript of the student's work should be kept on file by the college authorities This evidence of actual attendance at the secondary schools should be obtained no matter whether the student is admitted to the freshman or to higher classes

(*b*) The subjects for which credits for admission to the Premedical College Course may be granted are shown in the *following schedule*

SCHEDULE OF SUBJECTS REQUIRED OR ACCEPTED FOR ENTRANCE TO THE PREMEDICAL COLLEGE COURSE

Subjects	Units	Required
English literature and composition	3 4	3
Latin	1-4	
Greek	1 3	
French or German	1 4	2*
Other foreign languages	2	
Mathematics		
Elementary algebra	1	1
Advanced algebra	½ 1	
Plane geometry	1	1
Solid geometry	½	
Trigonometry	½	
History (one unit required)		
Ancient history	1	1
Medieval and modern history	1	
English history	½ 1	
American history	½ 1	
Civil government	½ 1	
Science		
Botany	½ 1	
Zoology	½ 1	
Chemistry	1	
Physics	1	
Physiography	½ 1	
Physiology	½ 1	
Astronomy	½	
Geology	½ 1	
Agriculture	1 2	
Bookkeeping	1	
Business law	½	
Commercial geography	½ 1	
Domestic science	1 2	
Drawing, freehand and mechanical	½ 2	
Economics and economic history	½ 1	
Manual training	1 2	
Music Appreciation or harmony	1 2	

A unit is the credit value of at least 36 weeks' work of four or five recitation periods per week, each recitation period to be of not less than 40 minutes In other words a unit represents a year's study in any subject in a secondary school constituting approximately a quarter of a full year's work A satisfactory year's work in any subject cannot be accomplished under ordinary circumstances in less than 120 sixty minute hours, or their equivalent

Of the 15 units of high school work *it is suggested* that 8 units be required, as indicated in the above schedule *and that other* work to the amount of at least 7 units may be made up from any of the other subjects of the above schedule

* A reading knowledge of French or German is required and should be obtained either in the high school or in college

II Premedical College Course

(*c*) Beginning Jan 1, 1918, the minimum requirement for admission to acceptable medical schools, in addition to the high school work specified above, will be sixty semester hours of collegiate work, extending through two years, of thirty-two weeks each, exclusive of holidays in a college of liberal arts and sciences approved by the Council on Medical Education The subjects included in the two years of college work should be in accordance with the following schedule

SCHEDULE OF SUBJECTS OF THE TWO YEAR PREMEDICAL COLLEGE COURSE

Sixty Semester Hours Required

	Semester Hrs
Required Courses	
Chemistry (a)	12
Physics (b)	8
Biology (c)	8
English Composition and Literature (d)	6
French or German (e)	6 12
Courses Strongly Urged	
Advanced Algebra, Solid Geometry and Trigonometry	3 6
Additional courses in Chemistry	3 6
An additional Modern Language—French or German (e)	6 12
Psychology	3 6
Advanced Zoology, Embryology or Comparative Anatomy	3 6
Suggested Elective Courses	
English (additional), Economics, History, Sociology Political Science, Logic, Mathematics, Latin, Greek, Drawing	

SUGGESTIONS REGARDING INDIVIDUAL SUBJECTS

(*a*) *Chemistry* Twelve semester hours required, of which six must consist of laboratory work Of the twelve, at least eight semester hours must be in general inorganic chemistry, of which four semester hours must consist of laboratory work The remaining hours may consist of work in analytic or organic chemistry When more than two years are spent in college, courses in organic, analytic or physical chemistry may be taken to advantage Chemistry is probably the most important science fundamental to medicine

(*b*) *Physics* Eight semester hours required, of which at least two must be laboratory work It is urged that this course be preceded by courses in advanced algebra, solid geometry and trigonometry

(*c*) *Biology* Eight semester hours required, of which four must consist of laboratory work This requirement may be satisfied by an eight semester hour course in either general biology or zoology, or by four semester hour courses each in zoology and botany

(*d*) *English Composition and Literature* The usual six semester hour introductory college course, or its equivalent, is required

(*e*) *French or German* A reading knowledge of one of these languages is required, and the requirement may be absolved by demonstration on examination, written or oral, of the ability to read fluently medical French or German When the requirement is absolved by college work, the student must complete the six semester hour course following either the two semester beginner's college course, or the completion of two entrance units of high school work in the language When the requirement is absolved by an examination, such examination shall be a standard examination covering a course of at least six semester hours If credit for such language has been counted toward the required fifteen units of secondary school work, no credit is to be given therefor, in the total sixty semester hours of required college work If the reading knowledge in one of these languages is obtained on the basis of high school work, the student is urged to take the other language in his college course It is not considered advisable, however, to spend more than twelve of the required sixty semester hours on foreign language In case a reading knowledge of one language is obtained by six semester hours of college work, another six semester hours may be well spent in taking the beginner's course in the other language, if this is followed up by systematic reading of scientific prose, a reading knowledge of the second language may be readily acquired When a student spends more than two years in college he may well spend twelve semester hours of his college work in the second language

STANDARDS OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

ESSENTIALS OF AN ACCEPTABLE MEDICAL COLLEGE

(Revised to Aug 15, 1917)

The following outline of the essentials of an acceptable medical college was issued by the Council on Medical Education of the American Medical Association for its suggestive value in the rapid development in progress in the medical colleges of the United States It also represents the basis on which medical colleges are rated in the Council's classifications

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[1] The Committee consists of Dr Kendric C Babcock Dean of the College of Liberal Arts and Sciences of the University of Illinois, Urbana Professor George Gailey Chambers Director of Admissions of the University of Pennsylvania Philadelphia Dr W F R Phillips, Professor of Anatomy of the Medical College of the State of South Carolina Dr Theodore Hough Dean of the University of Virginia Department of Medicine and Dr N P Colwell Secretary of the Council on Medical Education of the American Medical Association

ADMISSION OF STUDENTS

1 A strict enforcement of the foregoing standards and requirements for admission the college itself to be held responsible for any instances in which they are not enforced

Note—Since the product of the medical school depends largely on the quality of the students admitted in rating medical colleges special emphasis is laid by the Council on the strictness and honesty by which the standards of admission and advanced standing are administered By the admission of unfit students the school is handicapped from the very beginning and in the opinion of the Council deserves a low rating regardless of its equipment its clinical facilities and its teaching force

ENTRANCE CONDITIONS UNTIL JAN. 1, 1918

2 A student may be admitted with certain subject conditions provided he has completed at least one year [thirty semester hours see paragraph (*c*)] of work in an approved college of liberal arts or science provided *no conditions may be permitted in the prescribed eight semester hours of college chemistry* These conditions may be either in (1) or (2) but not in both (1) In one half (four semester hours) of the required course in physics or (2) in one half of the required course in biology (four semester hours) or in zoology (three semester hours) These conditions must be removed before the beginning of the work of the second medical year and the credits for these conditions must be in addition to the required thirty semester hours

(*c*) A candidate who has completed two or more years of work in an approved college of liberal arts or science may be admitted conditioned in all of the required work in physics or in one half of the physics and one half of the work required in biology to a total not to exceed eight semester hours These conditions must be removed before the beginning of the second medical year No condition may be permitted in the prescribed eight semester hours of college chemistry

After Jan 1 1918 the minimum requirement for admission to acceptable medical schools will be two years (sixty semester hours) of work in a college of arts and sciences[1] approved by the Council on Medical Education or its actual educational equivalent as demonstrated by an examination approved by the Council It is suggested that in addition to the courses outlined in the preceding paragraph, this two year course include a course in organic chemistry, a second year of biology and more work in the modern language unless the student already possesses a reading knowledge of it

APPROVED COLLEGES OF ARTS AND SCIENCES

3 (*a*) A list of colleges of arts and sciences approved by the Council on Medical Education is being prepared and will be published from time to time By an approved college (of arts and sciences) is meant one whose standing has been vouched for by some standardizing agency in whose methods the Council has confidence To be approved a college must have sufficient scientific equipment and maintain laboratories in the premedical sciences It must have ample endowment to maintain a sufficient corps of teachers Membership in some national organization or association of colleges will be favorably regarded by the Council and, in the absence of such membership, careful investigation will be made of the causes of exclusion

MEDICAL SCHOOL REQUIREMENTS

4 The college should require that students be in actual attendance in the college *within the first week* of each annual session and thereafter

5 Actual attendance at classes should be insisted on except for good cause, such as for sickness, and under no circumstances should credit be given for any course where the attendance has been less than 80 per cent. of the full time

6 (*a*) Full advanced standing may be granted to students only for work done in other acceptable colleges, and in granting advanced standing there should be no discrimination against the college's full-course students (*b*) In *exceptional cases* students from Class B medical schools may be given advanced standing but not higher than *entrance* to the third year (junior) class, and no credit should be given in any subject except on recommendation of the head of the department teaching that subject. (*c*) In *exceptional cases* students from Class C colleges may be given advanced standing but not higher than *entrance* to the second year (sophomore) class, and then only after thorough examinations in all first year subjects have been passed

SUPERVISION, EQUIPMENT, TEACHERS

7 There should be careful and intelligent supervision of the entire school by a dean or other executive officer who holds, and has sufficient authority to carry out, fair ideals of medical education as determined by modern knowledge.

8 There should be a good system of records showing conveniently and in detail the credentials, attendance, grades and accounts of the students by means of which an exact knowledge can be obtained regarding each student's work Records should also be kept showing readily the attendance of patients at the teaching hospitals and dispensaries, the maternity cases attended by students, and the postmortem cases used in teaching

9 The college should have a fully graded course covering four years of at least thirty-two weeks each, exclusive of time required for matriculation and holidays, and at least thirty hours per week of actual work, this course should be clearly set forth in a carefully prepared and printed schedule of lectures and classes

(*a*) The college should give two years of work consisting largely of laboratory work in thoroughly equipped laboratories in anatomy, histology, embryology, physiology, chemistry (inorganic, organic and physiologic), bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis Present-day medical knowledge makes it essential that these subjects be in charge of full-time, well-trained teachers

(*b*) Two years of clinical work largely in hospitals and dispensaries, with thorough courses in internal medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence.

(*c*) As soon as conditions warrant, a fifth undergraduate year should be required which should be spent by the student as an intern in an approved hospital

10 The college should provide at least *six expert, thoroughly trained professors* in the laboratory branches, salaried so that they may devote their entire time to instruction and to that research without which they cannot well keep up with the rapid progress being made in their subjects[2] There should also be a sufficient number of assistants in each department to look after the less important details For colleges having *sixty students or less* in each class, there should be *at least one full-time salaried assistant each in the departments* of (*a*) anatomy, (*b*) physiology, (*c*) pathology and bacteriology, and (*d*) physiologic chemistry and pharmacology, and *one additional assistant in each of these departments should be provided for each additional thirty students enrolled* This represents a low average of the full-time assistants already employed by the acceptable medical colleges

11 The faculty should be thoroughly organized and should be made up of graduates of institutions recognized as medical colleges and who have had a training in all departments of medicine. Nonmedical men should be selected as teachers in medical schools only under exceptional circumstances and only when medical men of equal special capacity are not available Faculty members should be appointed because of their ability as teachers and not because they happen to be on the attending staff of a hospital or for other like reasons

CLINICAL FACILITIES

12 The college should own or entirely control a hospital in order that students may come into close and extended contact with patients under the supervision of the attending staff This hospital should be in close proximity to the college and have a daily average (for senior classes of 100 students *or less*) of not less than 200 patients who can be utilized for clinical teaching, these patients to be of such character as to permit the student to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties In the use of this material it is suggested that *bedside and ward clinics* be developed for sections of from five to ten students, and that a certain number of patients in medicine, surgery and the specialties be assigned to each senior student. A

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[1] See report of special committee on Education Preliminary to the Study of Medicine.

[2] These professors should have a definite responsibility in the conduct of the college and their first and chief interest should be the training of medical students. It is advised that four of these professors be placed in charge of the departments of (*a*) anatomy (*b*) physiology, (*c*) pathology and bacteriology and (*d*) physiologic chemistry and pharmacology The other two may be assigned one to the laboratory course in histology and embryology under the department of anatomy and the other to the department of pathology and bacteriology possibly to the course in laboratory clinical diagnosis

well supervised clinical clerk system should also be installed The treatment and care of these patients should be particularly observed and recorded by the student under the strict supervision of the intern, or the attending staff of the hospital[3]

13 The college should also have ample hospital facilities for children's diseases, contagious diseases and nervous and mental diseases

14 At least six maternity cases should be provided for each senior student, who should have actual charge of these cases under the supervision of the attending physician Careful records of each case should be handed in by the student

15 Facilities should be provided for at least thirty necropsies (for senior classes of 100 students *or less*) during each college session which are attended and participated in by senior students

16 The college should own or control a dispensary, or outpatient department, the attendance to be a daily average of 100 patients (visits) (for senior classes of 100 students *or less*), the patients to be carefully classified, good histories and records of the patients to be kept and the material to be well used The attending staff should be made up of good teachers, should be well organized and be regular in attendance

OTHER TEACHING FACILITIES AND FINANCES

17 The college should have a working medical library to include the more modern text and reference books with the *Index Medicus* and thirty or more leading medical periodicals, the library room should be properly lighted and heated, and easily accessible to students during all or the greater part of the day, it should be equipped with suitable tables and chairs, and have a librarian in charge

18 A working medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes It is suggested that so far as possible with each pathologic specimen coming from postmortems there also be kept the record of the postmortem, the clinical history of the patient on whom the necropsy was held and microscopic slides showing the minute structures of the disease shown in the gross specimen

19 There should be sufficient dissecting material to enable each student individually to dissect at least the lateral half of the human cadaver, to provide cross-sections and other demonstration material and to allow of a thorough course for each senior in operative surgery on the cadaver

20 For modern experimental laboratory work in physiology, pharmacology and bacteriology as well as for a reasonable amount of medical research, a supply of animals—frogs, turtles, rabbits and guinea-pigs, if not also cats and dogs—is essential Proper provision, also, is necessary for the housing and care of such animals In any use made of animals great care should be used to prevent needless suffering, and work by students should be carefully supervised

21 A supply of such useful auxiliary apparatus as a stereopticon, a reflectoscope, carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, a Roentgen ray and other apparatus now so generally used in medical teaching

22 The college should show evidences of thorough organization and of reasonably modern methods in all departments and evidences that the equipment and facilities are *being intelligently used* in the training of medical students

23 A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions, courses offered and graduation should be clearly set forth, together with complete classified lists of its matriculants and latest graduating class in regular annual catalogues or announcements

24 Statistics show[4] that modern medicine cannot be acceptably taught by a medical school depending solely on the income from students' fees No medical school should expect to be retained in Class A, therefore, which does not have an annual income of at least $25,000 in addition to the amount obtained from students' fees

NOTE—Correspondence from medical colleges regarding the above requirements is invited, and further suggestions or information available will be gladly furnished

Grading of Medical Colleges

All medical colleges are rated by the Council on Medical Education on a civil service basis on a scale of 1,000 points The data relating to each college are grouped under ten general heads in such manner that the groups have as nearly equal weight as possible, each group allowing a possible 100 points (10 per cent.) out of a possible 1,000 points (100 per cent) The ten heads under which the data are arranged are as follows

1 Showing of graduates before state boards and other evidences of the training received

2 Enforcement of a satisfactory preliminary educational requirement, granting of advanced standing and the character of the records

3 Character of curriculum, grading of course, length of session, time allowed for matriculation and supervision

4 Medical school buildings, light, heat, ventilation, cleanliness

5 Laboratory facilities and instruction

6 Dispensary facilities and instruction

7 Hospital facilities and instruction, maternity work, necropsies specialties

8 Faculty, number and qualifications of trained teachers full time instructors, and assistants, especially of the laboratory branches, organization, and extent of research work

9 Extent to which the school is conducted for properly teaching the science of medicine rather than for the profit of the faculty directly or indirectly

10 Possession and use made of libraries, museums, charts, stereopticons, etc

Class A colleges are those which are acceptable, Class B, those which, under their present organization, might be made acceptable by general improvements, and Class C, those which require a complete reorganization to make them acceptable

CLASSIFICATION OF MEDICAL COLLEGES

Revised to June 7, 1917

CLASS A—ACCEPTABLE MEDICAL COLLEGES

ALABAMA	
University of Alabama School of Medicine	Mobile
CALIFORNIA	
Leland Stanford Junior Univ School of Med	San Francisco
University of California Medical School	San Francisco
COLORADO	
University of Colorado School of Med	Boulder-Denver
CONNECTICUT	
Yale University School of Medicine	New Haven
DISTRICT OF COLUMBIA	
Georgetown University School of Medicine	Washington
George Washington University Medical School	Washington
Howard University School of Medicine[1]	Washington
GEORGIA	
Emory University School of Medicine[2]	Atlanta
University of Georgia Medical Department[3]	Augusta
ILLINOIS	
Northwestern University Medical School	Chicago
Rush Medical College (University of Chicago)	Chicago
University of Illinois College of Medicine	Chicago
INDIANA	
Indiana Univ School of Med	Bloomington-Indianapolis
IOWA	
State University of Iowa College of Medicine	Iowa City
State Univ of Iowa Coll of Homeopathic Med	Iowa City
KANSAS	
University of Kansas School of Med	Lawrence-Rosedale
KENTUCKY	
University of Louisville Medical Department[4]	Louisville
LOUISIANA	
Tulane Univ of Louisiana School of Med	New Orleans
MAINE	
Bowdoin Medical School	Brunswick-Portland
MARYLAND	
Johns Hopkins University Medical Department	Baltimore
University of Maryland School of Medicine and the College of Physicians and Surgeons	Baltimore

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[3] Suggestions more in detail may be found in the "Report of the Committee on the Reorganization of Clinical Teaching," THE JOURNAL A M A, March 6 1915 Reprint sent on application

[4] See Medical College Finances THE JOURNAL A M A., April 8 1916, p 1115

[1] Rating raised to Class A June 6 1910

[2] Rating raised to Class A Feb 24, 1914, formerly the Atlanta Medical College

[3] Class A rating restored Feb 24 1913

[4] Rating raised to Class A June 6 1910

MASSACHUSETTS

Boston University School of Medicine	Boston
Medical School of Harvard University	Boston
Tufts College Medical School	Boston

MICHIGAN

Detroit College of Medicine and Surgery[5]	Detroit
University of Michigan Medical School	Ann Arbor
University of Mich Homeopathic Med School	Ann Arbor

MINNESOTA

University of Minnesota Medical School	Minneapolis

MISSISSIPPI

University of Mississippi School of Medicine*	Oxford

MISSOURI

St Louis University School of Medicine	St Louis
University of Missouri School of Medicine*	Columbia
Washington University Medical School	St Louis

NEBRASKA

John A Creighton Medical College[6]	Omaha
University of Nebraska College of Medicine	Omaha

NEW HAMPSHIRE

Dartmouth Medical School*	Hanover

NEW YORK

Albany Medical College	Albany
Columbia Univ Coll of Phys and Surgs	New York City
Cornell University Medical College	New York City
Fordham University School of Medicine[7]	New York City
Long Island College Hospital	Brooklyn
Syracuse University College of Medicine	Syracuse
University and Bellevue Hospital Med Coll	New York City
University of Buffalo Department of Medicine	Buffalo

NORTH CAROLINA

University of North Carolina School of Med*	Chapel Hill
Wake Forest College School of Medicine*	Wake Forest

NORTH DAKOTA

University of North Dakota School of Medicine*	University

OHIO

Ohio State University College of Medicine	Columbus
University of Cincinnati College of Medicine	Cincinnati
Western Reserve University School of Medicine	Cleveland

OREGON

University of Oregon Medical School	Portland

PENNSYLVANIA

Hahnemann Medical College and Hospital	Philadelphia
Jefferson Medical College of Philadelphia	Philadelphia
University of Pennsylvania School of Med	Philadelphia
University of Pittsburgh School of Medicine[8]	Pittsburgh
Woman's Medical College of Pennsylvania	Philadelphia

SOUTH CAROLINA

Medical College of the State of South Carolina[10]	Charleston

SOUTH DAKOTA

University of South Dakota College of Medicine*	Vermilion

TENNESSEE

University of Tennessee College of Medicine[11]	Memphis
Vanderbilt University Medical Department	Nashville

TEXAS

Baylor University College of Medicine[12]	Dallas
University of Texas Department of Medicine	Galveston

UTAH

University of Utah School of Medicine*	Salt Lake City

VERMONT

University of Vermont College of Medicine	Burlington

VIRGINIA

Medical College of Virginia	Richmond
University of Virginia Department of Med	Charlottesville

WEST VIRGINIA

West Virginia Univ School of Medicine*[13]	Morgantown

WISCONSIN

Marquette University School of Medicine[14]	Milwaukee
University of Wisconsin Medical School*	Madison

Total 69

CLASS B—COLLEGES NEEDING GENERAL IMPROVEMENTS TO BE MADE ACCEPTABLE

ARKANSAS

University of Arkansas Medical Department	Little Rock

CALIFORNIA

Oakland College of Medicine and Surgery[15]	Oakland
University of Southern California Medical Department (College of Physicians and Surgeons)	Los Angeles

ILLINOIS

Chicago College of Medicine and Surgery	Chicago
Hahnemann Medical College and Hospital[16]	Chicago
Loyola University School of Medicine[17]	Chicago

NEW YORK

New York Homeopathic Medical College and Flower Hospital[18]	New York City

NORTH CAROLINA

Leonard Medical School*[19]	Raleigh

OHIO

Eclectic Medical College	Cincinnati
Ohio State Univ Coll of Homeopathic Med[20]	Columbus

OKLAHOMA

Univ of Oklahoma School of Med[21]	Norman-Oklahoma City

PENNSYLVANIA

Temple University Department of Medicine[22]	Philadelphia

TENNESSEE

Meharry Medical College[23]	Nashville

TEXAS

Fort Worth School of Medicine[24]	Fort Worth

Total 14

CLASS C—COLLEGES REQUIRING A COMPLETE REORGANIZATION TO MAKE THEM ACCEPTABLE

CALIFORNIA

College of Medical Evangelists	Loma Linda-Los Angeles
College of Physicians and Surgeons	San Francisco

ILLINOIS

Chicago Hospital College of Medicine	Chicago
Jenner Medical College[25]	Chicago

MASSACHUSETTS

College of Physicians and Surgeons	Boston

MISSOURI

Eclectic Medical University[26]	Kansas City
National Univ of Arts and Sciences Med Dept[27]	St Louis

NEBRASKA

Lincoln Medical College[28]	Lincoln

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* Gives only the first two years of the medical course.

[5] Class A rating restored June 21 1914

[6] Class A rating restored Feb 4 1917

[7] Class A rating restored Feb 24 1914

[8] Class A rating restored June 21 1914

[9] Rating raised to Class A June 6 1910

[10] Class A rating restored Feb 6 1916

[11] Rating raised to Class A June 21 1914

[12] Rating raised to Class A June 12 1916

* Give only the first two years of the medical course.

[13] Class A rating restored Feb 4 1917

[14] Rating raised to Class A Feb 15 1915

[15] Rating dropped to Class B June 6 1910

[16] Rating dropped to Class B June 3, 1912

[17] Heretofore known as Bennett Medical College

[18] Rating dropped to Class B Feb 15 1915

[19] Rating raised to Class B June 21 1914

[20] Rating raised to Class B Feb 4 1917

[21] Rating dropped to Class B June 3 1912

[22] Rating raised to Class B June 6 1910

[23] Rating dropped to Class B Feb 24 1914

[24] Rating changed to Class B May 10 1914

[25] Rated in Class C when last inspected—1912 Has recently refused reinspection Data otherwise obtained do not indicate that a higher rating is warranted

[26] An offshoot of this institution—the Kansas City College of Medicine and Surgery—was organized in 1915 It is reported not recognized by the Missouri State Board of Health. Since it is an offshoot of a Class C institution reported not recognized by the Missouri State Board of Health no higher rating could be granted it pending an inspection

[27] Formerly known as the American Medical College.

[28]. Formerly known as the Cotner University Medical College

New York	
New York Med Coll and Hosp for Women[29]	New York City
Tennessee	
University of West Tenn Coll of Med and Surg	Memphis

Total 10

CLASSIFICATION OF CANADIAN MEDICAL COLLEGES

Class A	
University of Toronto Faculty of Medicine	Toronto, Ont.
McGill University Faculty of Medicine	Montreal, Que.
Class B	
University of Manitoba, Manitoba Medical College[30]	Winnipeg, Ont.
Dalhousie University Faculty of Medicine	Halifax, N S
Western University Faculty of Medicine[31]	London, Ont
Montreal School of Medicine and Surgery	Montreal, Que
Laval University Faculty of Medicine	Quebec, Que.
Class C	
Queen's University Faculty of Medicine[32]	Kingston, Ont.

The University of Alberta at Edmonton, besides the premedical year, gives only the first two years of the medical course as measured by that of the medical schools of the United States It has not been inspected

Colleges Not Recognized

Official statement from the following thirty-six state licensing boards indicate that as a rule the colleges rated in Class C are not recognized

Alabama
Arkansas (Reg)
Colorado
Connecticut (Reg)
Delaware
Florida (Reg)
Georgia
Indiana
Iowa
Kansas
Kentucky
Louisiana (Reg)
Maine
Maryland (Reg)
Michigan
Minnesota
Mississippi
Montana
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Pennsylvania
Porto Rico
Rhode Island
South Carolina
South Dakota
Texas
Vermont
Virginia
West Virginia
Wisconsin

The licensing boards of Montana, New Hampshire, Rhode Island and Virginia report that they recognize *only the* medical colleges listed in Class A.

Colleges Having Higher Entrance Requirements

The fifty-three medical schools* which are now requiring, as a minimum for entrance, *two years* or more of work in a college of liberal arts in addition to a four-year high-school education, the year when the higher requirement became effective and the rating of each college, are as follows

	In Effect	College Rating
ALABAMA		
University of Alabama School of Medicine	1915	A
CALIFORNIA		
College of Medical Evangelists	1915	C
University of Southern California Medical Department (College of Physicians and Surgeons)	1916	B
Leland Stanford Junior University School of Medicine	1909	A
University of California Medical School	1905	A
COLORADO		
University of Colorado School of Medicine	1910	A
CONNECTICUT		
Yale University School of Medicine	1909	A
DISTRICT OF COLUMBIA		
Georgetown University School of Medicine	1912	A
Howard University School of Medicine	1914	A
ILLINOIS		
Hahnemann Medical College and Hospital	1916	B
Northwestern University Medical School	1911	A
Rush Medical College (University of Chicago)	1904	A
University of Illinois College of Medicine	1914	A
INDIANA		
Indiana University School of Medicine	1910	A
IOWA		
State University of Iowa College of Medicine	1910	A
State University of Iowa College of Homeopathic Medicine	1910	A
KANSAS		
University of Kansas School of Medicine	1909	A
MAINE		
Bowdoin Medical School	1916	A
MARYLAND		
Johns Hopkins University Medical Department	1893	A
MASSACHUSETTS		
Boston University *School of Medicine*	1916	A
Medical School of Harvard *University*	*1900*	A
MICHIGAN		
University of Michigan Medical School	*1909*	A
University of Michigan Homeopathic Medical School	*1916*	A
MINNESOTA		
University of Minnesota *Medical* School	*1907*	A
MISSOURI		
University of Missouri School of Medicine	1910	A
Washington University Medical School	1912	A
NEBRASKA		
University *of* Nebraska College of Medicine	1909	A
NEW HAMPSHIRE		
Dartmouth Medical *School*	1910	A
NEW YORK		
Columbia University College of Physicians and Surgeons	1910	A
Cornell University Medical College	1908	A
Syracuse University College of Medicine	1910	A
NORTH CAROLINA		
Leonard Medical School	1914	B
Wake Forest College School of *Medicine*	1908	A
University of North Carolina School *of* Medicine	*1917*	A
NORTH DAKOTA		
University of North Dakota School of Medicine	1907	A
OHIO		
Ohio State University College of Medicine	*1915*	A
Ohio State Univ College of *Homeopathic* Medicine	1916	C
University of Cincinnati College *of* Medicine	1913	A
Western Reserve University School of Medicine	1901	A
OKLAHOMA		
University *of Oklahoma* School of Medicine	1917	B
OREGON		
University of Oregon Department of Medicine	1915	A
PENNSYLVANIA		
Hahnemann Medical College and Hospital	1917	A
Jefferson Medical College	*1917*	A
University of Pennsylvania School of *Medicine*	1910	A
University of Pittsburgh School of Medicine	*1913*	A
Woman's Medical College of Pennsylvania	1915	A
SOUTH CAROLINA		
Medical College of the State of South Carolina	*1916*	A
SOUTH DAKOTA		
University of South Dakota College of Medicine	*1909*	A
TEXAS		
University of Texas Department of Medicine	*1917*	A
UTAH		
University of Utah School of *Medicine*	1910	A
VIRGINIA		
Medical College of Virginia	*1915*	A
University of Virginia Department of Medicine	*1917*	A
WEST VIRGINIA		
West Virginia University School of Medicine	1917	A
WISCONSIN		
Marquette University School of Medicine	1915	A
University of Wisconsin Medical School	1907	A

The thirty following medical colleges† which are now requiring, as a minimum for entrance, one year of collegiate work in addition to a four-year high school course, the years when the requirements began and the rating of the colleges are

	In Effect	College Rating
ARKANSAS		
University of Arkansas Medical Department	1915	B
CALIFORNIA		
Oakland College of Medicine and Surgery	1915	B
DISTRICT OF COLUMBIA		
George Washington University Medical School	1914	A
GEORGIA		
Emory *University School of* Medicine, Atlanta	1914	A
University of Georgia *Medical Department*	*1914*	A
ILLINOIS		
Loyola University School of Medicine	1915	B
Chicago College of Medicine and Surgery	*1915*	B
KENTUCKY		
University of Louisville Medical Department	1914	A
LOUISIANA		
Tulane University of Louisiana School of Medicine	1910	A

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[29] Rating dropped to Class C June 3 1912

[30] Rating dropped to Class B Feb 6 *1916*

[31] Rating raised to Class B Feb 4, *1917*

[32] Rating dropped to Class C Feb *6, 1916*

* Colleges will be omitted from this list unless evidence obtained shows that, in the admission of students, they are requiring at least sixty semester hours of preliminary collegiate work in addition to a four year high school education

† Colleges will be omitted from this list unless evidence obtained shows that, in the admission of students, they are requiring at least thirty semester hours of preliminary collegiate work, in addition to a four year high school education

MARYLAND		
University of Maryland School of Medicine and College of Physicians and Surgeons	1914	A
MASSACHUSETTS		
Tufts College Medical School	1914	A
MICHIGAN		
Detroit College of Medicine and Surgery	1914	A
MISSISSIPPI		
University of Mississippi School of Medicine	1914	A
MISSOURI		
St Louis University School of Medicine	1910	A
NEBRASKA		
John A Creighton Medical College	1914	A
NEW YORK		
Albany Medical College	1914	A
Fordham University School of Medicine	1911	A
Long Island College Hospital	1914	A
New York Homeopathic Medical College and Flower Hospital	1915	B
New York Medical College and Hospital for Women	1916	C
University and Bellevue Hospital Medical College	1912	A
University of Buffalo Department of Medicine	1914	A
OHIO		
Eclectic Medical College	1915	B
OKLAHOMA		
University of Oklahoma School of Medicine	1914	B
PENNSYLVANIA		
Temple University Department of Medicine	1914	B
TENNESSEE		
Vanderbilt University Medical Department	1914	A
University of Tennessee College of Medicine	1914	A
TEXAS		
Baylor University College of Medicine	1913	A
Fort Worth School of Medicine	1916	B
VERMONT		
University of Vermont College of Medicine	1912	A

The eleven following medical colleges either have not announced the higher entrance requirements or evidence has not been received to show they are in effect for all students enrolled

	Rating
College of Physicians and Surgeons San Francisco	C
Chicago Hospital College of Medicine	C
Jenner Medical College Chicago	C
College of Physicians and Surgeons Boston	C
Middlesex College of Medicine and Surgery Cambridge Mass	*
Eclectic Medical University, Kansas City	C
Kansas City College of Medicine and Surgery	*
National University of Arts and Sciences St. Louis	C
St. Louis College of Physicians and Surgeons	C
Lincoln Medical College, Lincoln Neb	C
University of West Tenn College of Med and Surg Memphis	C

* This college has not been inspected

State University Medical Schools

Twenty-nine states now have medical schools as integral parts of the state universities or—in one instance—under state control as a separate institution. These states and other interesting data regarding the medical schools are as follows

STATE UNIVERSITY MEDICAL SCHOOLS

Medical School of State University of	Only School in State	Length of Med Course in Years	Years of College Work for Admission	Medical School of State University of	Only School in State	Length of Med Course in Years	Years of College Work for Admission
Alabama	Yes	4	2†	North Carolina		2	2
Arkansas*	Yes	4	2†	North Dakota	Yes	2	2†
California		5	2	Ohio*		4	2
Colorado	Yes	4	2†	Oklahoma	Yes	4	2†
Georgia		4	2	Oregon	Yes	4	2
Illinois		4	2	South Carolina	Yes	4	2†
Indiana	Yes	4	2†	South Dakota	Yes	2	2†
Iowa	Yes	4	2†	Tennessee		4	2
Kansas	Yes	4	2†	Texas		4	2
Maryland		4	2†	Utah	Yes	2	2
Michigan		4	2†	Vermont	Yes	5	2
Minnesota	Yes	5	2†	Virginia		4	2†
Mississippi	Yes	2	2	West Virginia	Yes	2	2
Missouri		2	2	Wisconsin.		2	2†
Nebraska		4	2				

* Have homeopathic departments
† Similar requirements by licensing board.

In sixteen states no other medical schools exist, medical education in the state being entirely in charge of the state university

An act of the Maryland legislature in 1914 created a Maryland State University and provided $15 000 per year for 1915 and 1916 to be used for medical education in the state The University of Maryland School of Medicine and the College of Physicians and Surgeons of Baltimore is the medical school of the new university

Of the twenty nine state medical schools, twenty-one give the complete medical course and grant degrees, while eight give only the first two years of the medical course California Minnesota and Vermont require a five-year course the fifth year to be spent by the student in a hospital as an intern or in other recognized clinical work The universities of Iowa Michigan and Ohio have homeopathic departments

All of these medical schools now require or have announced the requirement of two years of college work for admission In fifteen states the colleges have the support of their state licensing boards which have adopted two years of college work as the minimum requirement of preliminary education In some of the remaining states the licensing boards do not appear to be in sympathy with the higher requirement

State Requirements of Higher Preliminary Education

There are now thirty seven states which have adopted requirements of preliminary education in addition to a standard four year high school education These states the number of college years required and the time the higher requirements became or become effective are as follows

State Examining Board of	Number of Years Required	Affects Students Matriculating	Affects All Graduates
Requiring Two Years 25			
Alabama	2	1915-16	1919
Alaska	2	1918-19	1922
Arizona	2	1918 19	1922
Arkansas	2	1918 19	1922
Colorado	2	1910 11	1914
Indiana	2	1911 12	1915
Iowa	2	1911 12	1915
Kansas	2	1918-19	1922
Louisiana	2	1918-19	1922
Maryland	2	1918-19	1922
Michigan	2	1918 19	1922
Minnesota	2	1908-09	1912
Montana	2	1918-19	1922
New Hampshire	2	1915-16	1919
New Jersey	2	1917 18	1921
New Mexico	2	1918-19	1922
New York	2	1918-19	1922
North Dakota	2	1908-09	1912
Oklahoma	2	1917 18	1921
Rhode Island	2	1918-19	1922
South Carolina	2	1918-19	1922
South Dakota	2	1911 12	1915
Virginia	2	1917 18	1921
Washington	2	1918-19	1922
Wisconsin	2	1915-16	1919
Requiring One Year			
Alaska	1	1914 15	1918
Arizona*	1	1914 15	1918
Arkansas	1	1915-16	1919
California	1	1915-16	1919
Connecticut	1	1910-11	1914
Illinois	1	1915-16	1919
Indiana	1	1910-11	1914
Kansas	1	1910 11	1914
Kentucky	1	1914 15	1918
Louisiana	1	1915-16	1919
Maryland	1	1914 15	1918
Michigan	1	1914 15	1918
Mississippi	1	1915-16	1919
New Hampshire	1	1914 15	1918
New Jersey	1	1916-17	1920
New York*	1	1917 18	1921
North Carolina	1	1914-15	1918
Oklahoma*	1	1914 15	1918
Pennsylvania	1	1914 15	1918
Rhode Island	1	1914-15	1918
South Dakota*	1	1908-09	1912
Tennessee	1	1915-16	1919
Texas	1	1914 15	1918
Utah	1	1913 14	1917
Vermont	1	1913-14	1917
Virginia*	1	1914 15	1918
Washington	1	1914-15	1918
West Virginia	1	1917 18	1921

* The 2 year requirement became or becomes effective later

Hospital Intern Year

Six medical colleges have adopted the requirement of a fifth year to be spent by the student as an intern in an approved hospital or in other acceptable clinical work before the M D degree will be granted These colleges and the sessions when the requirement became effective are as follows

	Session of
University of Minnesota Medical School	1910 11
Leland Stanford Jr University School of Medicine	1914 15
Rush Medical College (University of Chicago)	1914 15
University of California Medical School	1914 15
Northwestern University Medical School	1915 16
University of Vermont College of Medicine	1915 16

Six state licensing boards now require that every candidate to be eligible for license to practice medicine in those states must have served at least one year as an intern in an approved hospital The requirement became effective in Pennsylvania in 1914, in New Jersey in 1916, and will become effective in North Dakota and Rhode Island in 1918, in Illinois in 1921 and in Michigan in 1922

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in this association are 14 units of high school work and two years (60 semester hours) of college work.

THE HIGH SCHOOL REQUIREMENT

(A) Required, 7 units	Units
Mathematics (minimum 2 years, maximum 3 years), algebra and plane geometry	2
English (minimum 2 years, maximum 4 years)	2
One foreign language (minimum 2 years, maximum 4 years)	2
History and civics	1
Total number of required units	7

(B) Elective, 7 units

To be selected from the following

	Units
English language and literature (in addition to the required work)	1 to 2
Foreign languages, additional, Latin, German, Italian, French, Spanish or Greek (not less than 1 year in any one)	1 to 4
Advanced mathematics, advanced algebra, solid geometry and trigometry (½ year each)	1
Natural science, chemistry 1 year, physics 1 year, and biology, botany, physiology and zoology (½ to 1 year each)	½ to 2
Earth science, physical geography, geology and agriculture (½ year to 1 year each)	½ to 1
Astronomy (½ year)	½
Drawing (½ to 1 year)	½ to 1
History, ancient, medieval and modern, and English (1 year each)	1 to 3
Economics (½ year)	½
Manual training (1 year)	1
Bookkeeping (½ to 1 year)	½ to 1

One unit in any subject is the equivalent of work in that subject for four or five periods per week for a year of at least thirty six weeks, periods to be not less than forty five minutes in length One unit is equivalent to 2 semester credits or 2 points

PREMEDICAL COLLEGE COURSE

(See Report of Special Committee on Education Preliminary to Study of Medicine, page 546)

MEDICAL CURRICULUM

Division 1—Anatomy 720 Hours (18 per Cent.)

	Hours	Lect	Rec	Dem	Lab Wk
(a) Gross anatomy (including applied anatomy)	510		120		390
(b) Histologic and microscopic anatomy	135		30		105
(c) Embryology	75		30		45

Division 2—Physiology and Chemistry, 600 Hours (15 per Cent)

	Hours	Lect	Rec	Dem	Lab Wk
(a) Inorganic chemistry	180		60		120
(b) Organic chemistry	75		30		45
(c) Physiologic chemistry	104		30		75
(d) Physiology	240		140		100

Division 3—Pathology Bacteriology and Hygiene, 450 Hours (11 25 per Cent.)

	Hours	Lect	Rec	Dem	Lab Wk
(a) Bacteriology	135		30		105
(b) Hygiene and general dietetics	45		45		
(c) Pathology	270		60		210

Division 4—Pharmacology, Materia Medica and Therapeutics, 240 Hours (6 per Cent)

	Hours	Lect	Rec	Dem	Lab Wk.
(a) Pharmacology	105		40		65
(b) Materia medica and pharmacology	80				
(c) Therapeutics	55				

Division 5—Medicine and Medical Specialties, 970 Hours (24 25 per Cent.)

	Hours	Lect	Rec	Dem	Lab Wk
(a) General medicine (including clinical microscopy)	640				
(b) Pediatrics	150				
(c) Nervous and mental diseases	105				
(d) Jurisprudence, ethics and economics	30				
(e) Dermatology and syphilis	45				

Division 6—Surgery and Surgical Specialties, 720 Hours (18 per Cent)

	Hours	Lect.	Rec	Dem	Lab Wk
(a) General surgery	510				
(b) Orthopedic surgery	45				
(c) Genito urinary diseases	45				
(d) Eye	60				
(e) Ear, nose and throat	60				

Division 7—Obstetrics and Gynecology 300 Hours (7 5 per Cent)

	Hours	Lect	Rec	Dem	Lab Wk
(a) Obstetrics	195				
(b) Gynecology (including some abdominal surgery)	105				

Colleges may reduce the number of hours in any subject not more than 20 per cent provided that the total number of hours in a division is not reduced Where the teaching conditions in a college are best subserved the subject may be, for teaching purposes, transferred from one division to another When didactic and laboratory hours are specified in any subject, laboratory hours may be substituted for didactic hours

(Note.—At the 1916 meeting the Committee on Education and Pedagogics was instructed to revise this curriculum to meet the present requirements)

MEMBERS OF ASSOCIATION

University of Alabama School of Medicine
Leland Stanford Junior University School of Medicine
University of California Medical School
University of Southern California Medical Department.
University of Colorado School of Medicine.
Yale University School of Medicine
Georgetown University School of Medicine
George Washington University Medical School.
Howard University School of Medicine
Emory University School of Medicine
University of Georgia Medical Department.
Northwestern University Medical School
Rush Medical College
University of Illinois College of Medicine
Indiana University School of Medicine.
State University of Iowa School of Medicine
University of Kansas School of Medicine
University of Louisville Medical Department
Tulane University of Louisiana School of Medicine
Johns Hopkins University Medical Department
University of Maryland School of Medicine and College of Physicians and Surgeons
Medical School of Harvard University
Tufts College Medical School
Detroit College of Medicine and Surgery
University of Michigan Medical School
University of Minnesota Medical School
University of Mississippi School of Medicine
St Louis University School of Medicine
University of Missouri School of Medicine.
Washington University Medical School
John A Creighton Medical College
University of Nebraska College of Medicine
Columbia University College of Physicians and Surgeons.
Cornell University Medical College
Fordham University School of Medicine
Syracuse University College of Medicine
University and Bellevue Hospital Medical College
University of Buffalo Medical Department
University of North Carolina School of Medicine.
Wake Forest College School of Medicine
University of North Dakota School of Medicine
University of Cincinnati College of Medicine
Ohio State University College of Medicine
Western Reserve University School of Medicine.
University of Oklahoma School of Medicine
Hahnemann Medical College and Hospital of Philadelphia
University of Pennsylvania School of Medicine
University of Pittsburgh School of Medicine
University of the Philippines College of Medicine and Surgery
Medical College of the State of South Carolina
Meharry Medical College (Affiliated Member)
University of Tennessee College of Medicine
Vanderbilt University Department of Medicine.
Baylor University School of Medicine
University of Texas Department of Medicine.
University of Vermont College of Medicine
Medical College of Virginia
West Virginia University School of Medicine
Marquette University School of Medicine
University of Wisconsin Medical School

The secretary-treasurer of the Association is Dr Fred C Zapffe, 3431 Lexington Street, Chicago

DESCRIPTION OF MEDICAL COLLEGES

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine several of which do not grant degrees The name address year of organization history and date when first class graduated are given in each instance Unless otherwise stated a class graduated each subsequent year Where official reports have been received from the college information regarding faculty entrance requirements length of term fees students (excluding specials and postgraduates) graduates name of dean and next session is given without discrimination regardless as to whether the college is sectarian or not In a few instances in which such reports were not received the information published is from other reliable sources Figures for graduates include all who graduated since July 1 1916 Extracts of rules and the membership of the Association of American Medical Colleges are shown following the list of colleges Figures showing population of cities and states are taken from the United States Census Bureau's estimate for 1915 Statements have been added showing the preliminary requirements held by state licensing boards where those requirements include one or two years of collegiate work Six states Illinois Michigan New Jersey North Dakota Pennsylvania and Rhode Island require a year's hospital internship before a license will be granted

ALABAMA

Alabama population 2 301 277 has one medical college the School of Medicine of the University of Alabama located in Mobile a city with a population of 56 536

In order to secure licenses to practice medicine in Alabama students matriculating in the session of 1915 16 and thereafter must have completed *two years* of work in an approved college of liberal arts including courses in physics, chemistry biology and a modern language prior to entering on the study of medicine.

Mobile

University of Alabama School of Medicine St Anthony and Lawrence Streets —Organized in 1859 as the Medical College of Alabama Classes were graduated in 1861 and in all subsequent years except 1862 to 1868 inclusive It was reorganized as the Medical Department of the University of Alabama in 1897 All property was transferred to the University of Alabama in 1907 when the present title was assumed Two years of college work are required for admission The faculty consists of 14 professors and 27 lecturers and assistants a total of 41 The course of study covers four years of thirty two weeks each The total fees for each of the four years respectively are $160 $155 $155 and $180 The Dean is Dr T H Frazer The total registration for 1916–1917 was 43 graduates 18 The fifty second session begins Oct 4 1917 and ends June 5 1918

ARKANSAS

Arkansas population 1 713 102 has one medical college the Medical Department of the University of Arkansas, located in Little Rock a city of 55 158

To secure licenses to practice medicine in Arkansas students matriculating in the session of 1915 16 and thereafter must have completed at least one year of collegiate work including college courses in physics chemistry biology and a modern language before beginning the study of medicine This applies to all graduates of 1919 and thereafter Matriculants for the session of 1918-19 (graduates of 1922) and thereafter must have completed *two years* of premedical college work.

Little Rock

University of Arkansas Medical Department Markham and Center Streets —Organized in 1879 as the Medical Department of Arkansas Industrial University It assumed the present title in 1899 In 1911 the College of Physicians and Surgeons united with it and the new school was made an integral part of the University of Arkansas The first class was graduated in 1880 The faculty consists of 17 professors and 43 lecturers and assistants, total 60 Entrance requirements in 1918–19 and thereafter will be two years of collegiate work beyond a four year high school course. The course of study covers four years of thirty two weeks each. The fees are $50 each year The Dean is Dr Morgan Smith Total registration 1916–17 was 43 graduates 15 The thirty ninth session begins Sept. 17 1917, and ends May 29 1918

CALIFORNIA

California, population 2 848,275 has seven medical colleges Four are located in San Francisco, a city of 448 502 inhabitants They are Leland Stanford Junior University School of Medicine College of Medicine of the University of California, the College of Physicians and Surgeons and the Hahnemann Medical College of the Pacific The College of Physicians and Surgeons, Medical Department of the University of Southern California is situated in Los Angeles population 465 367 The Oakland College of Medicine and Surgery is in Oakland population 190,803 The College of Medical Evangelists is located at Loma Linda, a village of 110 people

To secure licenses to practice medicine in California under the "physician's and surgeon's" certificate, students matriculating in medical colleges in and after the session of 1915-16 prior to such matriculation must have completed at least one year of recognized collegiate work including college courses in physics chemistry biology and a modern language This applies to all graduates of 1919 and thereafter

Berkeley-San Francisco

University of California Medical School University Campus Berkeley Second and Parnassus Avenues San Francisco —Organized in 1863 as the Toland Medical College The first class graduated in 1865 In 1872 it became the Medical Department of the University of California In 1909 the College of Medicine of the University of Southern California at Los Angeles by legislative enactment became a clinical department This Los Angeles portion was changed to a graduate school in 1914 In 1915 the Hahnemann Medical College of the Pacific was merged and elective chairs in homeopathic materia medica and therapeutics were provided for *Two years* of collegiate work are required for admission The work of the first year and a half is given at Berkeley and the work of the last two and a half years at San Francisco The faculty is composed of 39 professors and 100 associates and assistants a total of 139 The course covers five years of nine months each the fifth year to consist of an internship or of special work in a department of the medical school Fees for the four years respectively are $195 $155 $160 and $150 The Dean is Dr Herbert C Moffitt San Francisco Total registration for 1916–17 was 129 graduates [illegible] The forty fifth session begins Aug 20 1917 and ends April 27 1918

Loma Linda-Los Angeles

College of Medical Evangelists —Organized in 1909 The faculty numbers 52 The first class graduated in 1914 The course extends over four years of nine months each *Two years* of college work are required for admission The total fees for the four years respectively are $160 $161 $130 and $146 The Dean is Dr P T Magan The total registration for 1916–17 was 55 graduates 13 The ninth session begins Sept 2 1917 and ends May 30 1918

Los Angeles

College of Physicians and Surgeons Medical Department of the University of Southern California 516 East Washington Street — Organized in 1903 first class graduated in 1905 became Medical Department University of Southern California Aug 11 1909 The course covers four years of nine months each *Two years* of collegiate work are required for admission The faculty consists of 21 professors and 82 associate professors lecturers and instructors a total of 103 The fees for the four years respectively are $220 $217 $202 and $227 The Dean is Dr Charles W Bryson The registration for 1916–17 was 136 graduates 49 The next session begins Sept. 4 1917 and ends June 6 1918

Oakland

Oakland College of Medicine and Surgery Thirty First and Grove Streets —Organized in 1900 opened in 1902 The first class graduated in 1906 The faculty numbers 44 One year of college work is required for admission The course covers four years of nine months each and the classes are limited to ten students each The total fees for each of the four years respectively are $185 $178 $150 and $175 The Registrar is Dr Edward N Ewer The total registration for 1916–17 was 16 graduates 4 The sixteenth session begins Aug 20 1917 and ends May 14 1918

San Francisco

College of Physicians and Surgeons 344 Fourteenth Street — Organized in 1896 The first class graduated in 1897 The faculty numbers 39 The course covers four years of nine months each The fees for each of the first three years are $192 50 and $217 50 for the fourth year The Dean is Dr L W Spriggs Registration for 1916–17 was 77 graduates 8 The twenty first session begins Sept. 3 1917 and ends June 6 1918 *Reported not recognized by licensing boards of thirty nine states*

San Francisco-Palo Alto

Leland Stanford Junior University School of Medicine University Campus Palo Alto and Sacramento and Webster Streets San Francisco —Organized in 1908 when by an agreement the interests of Cooper Medical College were taken over The first class was graduated in 1913 The faculty consists of 49 professors and 48 lecturers, assistants etc a total of 97 Three years of collegiate work are required for admission The course covers five years of nine months each including a year of practical or intern work. The total fees for the first four years respectively are $160 $155 $150 and $150 The Dean is Dr W Ophuls San Francisco The total registration for 1916–17 was 100 graduates 23 The eighth session begins Oct. 1 1917 and ends June 13 1918

COLORADO

Colorado, with a population of 935,799, has one medical college the University of Colorado School of Medicine The first two years of the course are given at Boulder, the seat of the university, while the last two, or clinical years, are given in Denver, which has a population of 253,161

The Colorado State Board of Medical Examiners will register without further examination graduates of medical colleges in good standing who present licenses issued after examination by any other licensing board The law permits any one, graduate or nongraduate, to try the board's written examination No graduate of 1914 or thereafter is eligible to obtain a license in Colorado, or indorsement of his credentials, unless he graduated from a medical college which, at the time he matriculated, required at least *two years'* study, without conditions, in an accredited college of liberal arts, and this work must have included courses in physics, chemistry, biology and one modern language

Boulder-Denver

University of Colorado School of Medicine —Organized in 1883 Classes were graduated in 1885 and in all subsequent years except 1898 and 1899 Denver and Gross College of Medicine was merged Jan 1, 1911 The faculty embraces 14 professors, 18 associate and assistant professors, and 57 lecturers instructors and assistants, a total of 89 The work embraces a graded course of four years of nine months each The entrance requirements are *two years* of college work counting toward a degree in arts in an accredited college or university The tuition is $75 per year for residents of Colorado, $100 for nonresidents Laboratory fees are $10 for each of the first two years The Dean is Dr Charles N Meader The total registration for 1916–17 was 85, graduates, 21 The thirty sixth session begins Sept 10, 1917, and ends June 5, 1918

CONNECTICUT

Connecticut, with a population of 1,223,583, has one medical college, Yale University, School of Medicine, located in New Haven, population 147,095

Candidates for license to practice medicine in Connecticut who graduate in 1914 or thereafter are not eligible unless, prior to entering on the study of medicine, they had completed, in addition to an accredited four-year high school education, at least nine months of collegiate work including college courses in physics, chemistry and general biology

New Haven

Yale University School of Medicine, 150 York Street and Congress Avenue and Cedar Street.—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1812, instruction began in 1813, first class graduated in 1814 A new charter in 1879 changed the name to the Medical Department of Yale College. In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter In 1887, Yale College became Yale University The faculty consists of 21 professors and 54 lecturers and assistants, a total of 75 The requirements for admission are *two years* of collegiate work plus evidence of satisfactory completion of courses in general physics, general inorganic chemistry, general biology, organic chemistry and physical chemistry or laboratory physics all reasonably equivalent to the courses in these subjects in Yale University The student also must have a reading knowledge of German The course covers four years of nine months each The fees for the four years, respectively, are approximately $205 $200, $200 and $210 The Dean is Dr George Blumer The total registration for 1916–17 was 77, graduates, 10 The 105th session begins Sept 27, 1917, and ends June 19, 1918

DISTRICT OF COLUMBIA

The District of Columbia, population 358,679, has three medical colleges, George Washington University Medical School, Georgetown University, School of Medicine and Howard University, School of Medicine

WASHINGTON

George Washington University Medical School, 1325 H Street N W —Organized in 1825 as the Medical Department of Columbian College Also authorized to use the name National Medical College Classes were graduated in 1826 and in all subsequent years except 1834 to 1838, and 1861 to 1863, inclusive The original title was changed to Medical Department of Columbian University in 1873 In 1903 it absorbed the National University Medical Department. In 1904, by an act of Congress, the title of George Washington University was granted to the institution The faculty is composed of 37 professors and 57 instructors, demonstrators and assistants, a total of 94 *One year* of collegiate work will be required for admission for the session of 1917–18, thereafter *two years* of college work will be required The course covers four years of thirty two weeks each The total fees are $175 each year The Dean is Dr William C Borden The total registration for 1916–17 was 114 graduates 41 The ninety sixth session begins Sept. 26, 1917, and ends June 5 1918

Georgetown University School of Medicine, 920 H Street, N W —Organized in 1851 The first class graduated in 1852 The faculty contains 24 professors 67 instructors and assistants, total, 91 *Two years of* collegiate work are required for entrance The course of study covers *four terms* of eight and one-half months each The fees for the first year are $165 and for each of the other three years, $150 The Dean is Dr George M Kober The registration for 1916–17 was 60 graduates 13 The sixty seventh session begins Sept 26, 1917, and ends June 12, 1918

Howard University School of Medicine, Fifth and W Streets, N W —Chartered in 1867 *Organized in 1869* The first class graduated in 1871 Colored students compose a majority of those in attendance The faculty *comprises 18* professors and *21 lecturers* and assistants, *39 in all* The admission requirements are *two years* of collegiate work, including physics, chemistry, *botany and zoology,* English and two years of French or German The course covers four years of thirty two weeks each The fees *of* each of the four sessions, *respectively, are* $140 $130, $130 and *$137* The Dean is Dr Edward A Balloch Registration for 1916–17 was 111, *graduates, 13* *The fiftieth* session begins Oct 1, 1917, and ends June 5, 1918

GEORGIA

Georgia, population 2,816,289, has two medical colleges, University of Georgia, Medical Department, located in Augusta, population 49,848, and the Emory University School of Medicine in Atlanta, a city of 184,873 population

Atlanta

Emory University School of Medicine, Butler and Armstrong Streets — Organized in 1854 Classes graduated 1855 to 1861, when it suspended Reorganized in *1865* A class graduated in *1865* and each subsequent year except 1874 *In* 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of *Physicians* and Surgeons. *In 1913* it merged with the Atlanta School of Medicine (organized in 1905), reassuming *the name* of Atlanta Medical College *Became the* Medical Department of Emory University in 1915 assumed present title in *1917* One *year of* collegiate work is required for entrance, *two years* will be required for the session of 1918–19 and thereafter It has a faculty *of 39* professors and 83 instructors, assistants, etc a total of 122 The course of study is four years of thirty two weeks each The fees for each *of the* four years, respectively, are $172 $160 $155 and $180 The Dean is Dr W S Elkin Total registration for 1916–17 was 149, *graduates, 63* The *next session* begins Sept 24, 1917, and ends May 28, 1918

Augusta

University of Georgia, Medical Department, University Place —Organized in *1828* as *the Medical Academy of Georgia,* the name being changed to the Medical College of *Georgia in 1829* Since 1873 it has been known as the Medical Department of the University of Georgia Entire property *transferred* to the university in 1911 Classes were graduated in 1833 and in all subsequent years except *1862 and 1863* The *faculty* includes *18 professors* and 31 assistants, 49 in all One year of collegiate work is *required for* entrance, *two years* will be required for the session of 1918–19 and *thereafter* The course is four years of thirty four weeks each Fees are $150 each year for nonresidents of Georgia, for residents the fees for the four years respectively, are $55, $50, $50 and $60 The *Dean is Dr W H* Doughty Jr *The* total *registration for 1916–17* was 55 graduates, 11 The eighty sixth session begins Sept 12, 1917, and ends May 29, 1918

ILLINOIS

Illinois, population 6,069,519, has eight medical colleges, two of which give instruction at night, all located in Chicago, a city of 2,447,045 inhabitants, and are as follows Rush Medical College, Northwestern University Medical School, University of Illinois College of Medicine, Hahnemann Medical College and Hospital, Loyola University School of Medicine Chicago College of Medicine and Surgery, Jenner Medical College, and the Chicago Hospital College of Medicine

To be eligible for license to practice medicine in Illinois, students matriculating in the session of 1915-16 and thereafter, in addition to an accredited four-year high school education, must have completed at least a year of collegiate work including courses in physics, chemistry, biology and a modern language, to be taken either in a preliminary year given by a recognized medical college, or in an approved college of liberal arts Graduates of 1923 and thereafter shall have completed over a year's internship in a hospital

Chicago

Rush Medical College —This school was founded in *1837,* organized in *1843,* was the medical *department* of Lake Forest University *from* 1887 until 1898, *when it became* affiliated with the University of Chicago The first class *graduated in 1844* The *faculty* is composed *of 107 pro*fessors, 167 associates instructors, etc , a total of *274* The requirements for admission are *two years* of college work including courses in college chemistry, physics and biology, and a reading knowledge of German or French *Classes* are limited to 100 students in each *of the* freshman and *sophomore* classes, and to *120* students in each of the clinical years. No application *for* admission is accepted after September 1 The course covers four *years* of eight and a half months each and a fifth year, consisting of a *hospital internship or* of a fellowship in one of the departments All freshman and sophomore studies are given at the University of Chicago The *clinical* years are given in the building at the corner of Wood and Harrison Streets The tuition fees are $180 each year A *matriculation* fee of $5 is paid but once and there are incidentals amounting from $5 to $7 annually The Dean is Dr John M Dodson Total *registration 1916–17* was 567, graduates, 124 The seventy fourth session begins Oct. 1, *1917,* and ends June 15 1918

Northwestern University Medical School, *2431* South Dearborn Street.—Organized in 1859 as the Medical *Department* of Lind Univer sity First class graduated in 1860 In 1864 it became independent as the Chicago Medical College It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891 when the present name was taken Became an integral part of Northwestern University in 1905 The faculty comprises 60 professors and 88 lecturers and assistants a total of 148 The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University plus *two years* of college work including courses in physics, chemistry biology and a modern language The course covers four years of eight months each The fees for the four years respectively are $1[illegible]7 $1[illegible]5 $190 and $206 The Dean is Dr Arthur I Kendall The total registration for 1916–17 was 247 graduates 42 The fifty-eighth session begins Oct. 2 1917 and ends June 8 1918

University of Illinois College of Medicine Honore and Congress Streets.—Organized in 1882 as the College of Physicians and Surgeons The first class graduated in 1883 It became the Medical Department of the University of Illinois by affiliation in 1897 and an integral part in 1910 The relationship with the university was canceled in June 1912 but restored in March 1913 when the present title was assumed The American Medical Missionary College was absorbed in 1910 *Two years* of collegiate work are required for admission The faculty is composed of 68 professors [illegible] assistants and instructors a total of 1[illegible] The total fees for the four years respectively are $155 $160 $150 and $1[illegible]5 The Dean is Dr Albert C Eycleshymer The thirty sixth session begins Oct 1 1917 and ends June 1[illegible] 1918

Chicago College of Medicine and Surgery 706 South Lincoln Street.—Organized in 1901 as the American College of Medicine and Surgery (Chicago Eclectic Medical College) The latter part of the name was dropped in 1902 and it became the Medical Department of Valparaiso University Eclecticism was dropped in 1905 The present title was assumed in 1907 One year of collegiate work including courses in physics chemistry and biology is required for admission The course covers four years of eight months each The faculty numbers 172 The total fees of each of the four years are $155 matriculation fee $5 The Secretary is Dr G I Wancken The total registration for 1916–17 was 415 graduates 1[illegible] The seventeenth session begins Sept 25 1917 and ends May 2[illegible] 1918

Hahnemann Medical College and Hospital of Chicago 2811 Cottage Grove Avenue.—Organized in 1859 The first class was graduated in 1861 Absorbed the Chicago Homeopathic Medical College in 1904 The faculty includes 56 professors and 27 lecturers assistants etc a total of 83 *Two years* of collegiate work are required for admission *Two years* of collegiate work are to be required from and after 1918 The course extends over four years of eight months each The tuition fees for the four years respectively are $176 50 $161 50 $176 50 and $191 50 The Dean is Dr Joseph P Cobb The total registration for 1916–17 was 76 graduates 30 The fifty eighth session begins Sept 24 1917 and ends June 6 1918

Loyola University School of Medicine Fulton and Ada Streets.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery Dropped Eclecticism and became Bennett Medical College in 1909 In 1910 it absorbed the Illinois Medical College and in 1911 the Reliance Medical College. The first class graduated in 1870 Became an integral part of Loyola University in 1915 Present title in 1916 The faculty numbers 111 The course covers four years of thirty two weeks each One year of collegiate work is required for admission including courses in physics chemistry and biology The fees are $150 each year matriculation fee $5 graduation fee $25 The Acting Dean is Dr Alfred de Roulet The total registration for 1916–17 was 2[illegible] graduates 83 The next session begins Sept 25 1917, and ends June 1 1918

Jenner Medical College an afternoon and night school located at 701 South Wood Street.—Organized in 1892 Classes were graduated in 1896 and all subsequent years The fees for each of the four years respectively are $140 $135 $135 and $175 The Secretary is Dr John D MacKellar Total registration for 1916–17 was 118 graduates 14 The next session begins Sept 19 1917 and ends June 22 1918 *Reported not recognized by the licensing boards of thirty eight states*

Chicago Hospital College of Medicine another afternoon and night school located at 3832 Rhodes Avenue.—Organized in 1911 chartered in 1912. Total registration for 1916–17 was 53 graduates reported 7 *Official reports indicate that the diplomas from this college are not recognized by the licensing boards of thirty eight states*

INDIANA

Indiana, population 2,798 142, has one medical college the Indiana University School of Medicine, located at Indianapolis a city of 265,578 people, except that the work of the first year is offered also at Bloomington, the seat of the University

Candidates for license to practice medicine in Indiana who matriculated between Jan 11 1910 and Jan 1 1911, must have completed one year of collegiate work in addition to an accredited four-year high school course, prior to beginning the study of medicine Those matriculating subsequent to Jan. 1, 1911, must have completed *two years* of work in a recognized college of liberal arts

Bloomington and Indianapolis

Indiana University School of Medicine.—Organized in 1903 but did not give all of the work of the first two years of the medical course until 1905 In 1907 by union with the State College of Physicians and Surgeons the complete course in medicine was offered In 1908 the Indiana Medical College which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878) the Central College of Physicians and Surgeons (organized in 1879) and the Fort Wayne College of Medicine (organized in 1879) merged into it The first class was graduated in 1908 The faculty consists of 65 professors and 76 lecturers associates and assistants, a total of 161 *Two years* of collegiate work are required for admission. The work of the first year is emphasized only at Bloomington The work of the other three years is all at Indianapolis The fees for the four years respectively are $100 $100 $130 and $130 A fifth optional intern year leading to the "M D cum laude" has been added The Secretary at Bloomington is Dr B D Myers the Dean is Dr Charles P Emerson Indianapolis The total registration for 1916–17 was 175 graduates 37 The next session begins Sept 17, 1917 and ends June 12, 1918

IOWA

Iowa population 2 221 038 has two medical colleges The College of Medicine and the College of Homeopathic Medicine of the State University of Iowa, both located in Iowa City population 11 200

Candidates for license to practice medicine in Iowa who graduate subsequent to Jan 1, 1915, must have completed *two years* of work in an approved college of liberal arts prior to beginning the study of medicine this preliminary college work to have included courses in physics, chemistry, biology and a foreign language

Iowa City

State University of Iowa College of Medicine University Campus.—Organized in 1869 First session began in 1870 First class graduated in 1871 Absorbed Drake University College of Medicine in 1913 The faculty is made up of 27 professors 24 lecturers demonstrators and assistants a total of 51 *Two years* of collegiate work including courses in physics chemistry biology and French or German are required for admission The course of study covers four years of thirty six weeks each The tuition fee for residents of Iowa is $65 per year and for nonresidents $100 plus a matriculation fee of $10 and a graduation fee of $10 The Dean is Dr Lee Wallace Dean Iowa City Total registration for 1916–17 was 162 graduates 20 The forty eighth session begins Sept 17, 1917 and ends June 7 1918

State University of Iowa College of Homeopathic Medicine.—Organized in 1877 The first class graduated in 1878 Class each subsequent year except 1914 The faculty is composed of 15 professors and 11 lecturers and assistants a total of 26 The work of the first two years is taken in classes with the students of the College of Medicine of the State University of Iowa and it has the same entrance and fee requirements. The Dean is Dr George Royal Total registration for 1916–17 was 7 graduate 1 The fortieth session begins Sept 17 1917, and ends June 7 1918

KANSAS

Kansas population 1 807,221 has one medical college The School of Medicine of the University of Kansas gives its first two years in Lawrence population 12,915 and the last two years in Rosedale a suburb of the two Kansas Cities, which together have a population of 392 693

Candidates for license to practice medicine in Kansas who matriculated in the session of 1910-11 and thereafter must present credentials showing that they matriculated in and graduated from a medical college which required for admission at least one year of collegiate work including college courses in physics chemistry and biology in addition to an accredited four-year high school course This applies to graduates of 1914 and thereafter Students matriculating in 1918-19 (graduates of 1922) and thereafter will be required to have completed *two years* of premedical college work.

Lawrence and Rosedale

University of Kansas School of Medicine.—Organized in 1880 It offered only the first two years of the medical course until in 1905 when it merged with the Kansas City (Mo) Medical College founded in 1869 the College of Physicians and Surgeons founded in 1894 and the Medico Chirurgical College founded in 1897 First class graduated in 1906 The clinical courses are given at Rosedale Absorbed Kansas Medical College in 1913 The faculty including lecturers and clinical assistant numbers 57 The requirements for admission are *two years* of collegiate work. The course covers four years of nine months each The total fees are for each of the first two years $60 and for the last two years $100 The Dean is Dr S J Crumbine Associate Dean Dr M T Sudler The total registration for 1916–17 was 118 graduates 19 The thirty eighth session begins Sept. 20 1917 and ends June 12 1918

KENTUCKY

Kentucky, population 2,365 185, has one medical college, the University of Louisville Medical Department, situated in Louisville a city of 237,012 inhabitants

To be eligible for license to practice medicine in Kentucky all students matriculating in and after the session of 1914-15 must have completed, in addition to an accredited four-year high school course, at least one year's work in an approved college of liberal arts including college courses in physics, chemistry, biology and a modern language

Louisville

University of Louisville Medical Department, First and Chestnut Streets.—Organized in 1837 as the Louisville Medical Institute The first class graduated in 1838 and a class graduated in each subsequent year except in 1863 In 1846 the present name was assumed In 1907 it absorbed the Kentucky University Medical Department In 1908 it absorbed the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine One year of collegiate work is required for admission It has a faculty of 30 professors and 64 lecturers and assistants, a total of 94 The course covers four years of thirty two weeks each The fees for each of the four years, respectively, are $175, $176, $179 and $183 The Dean is Dr Henry Enos Tuley The total registration for 1916–17 was 118, graduates, 66 The next session begins Sept. 25, 1917, and ends June 6, 1918

LOUISIANA

Louisiana, having a population of 1,801,306, contains one medical college, the School of Medicine of the Tulane University of Louisiana, situated in New Orleans, a city of 366,484

Candidates for license to practice medicine in Louisiana who graduate in 1919 and 1922 must present evidence that they had successfully completed, at an approved college or university, respectively, one year and *two years* of work including biology, physics, chemistry and a modern language, before entering on the study of medicine. These requirements apply to all students who matriculated, respectively, in 1915 and 1918

New Orleans

Tulane University of Louisiana School of Medicine University Campus and 1551 Canal Street —Organized in 1834 as the Medical College of Louisiana Classes were graduated in 1835 and in all subsequent years except 1863 65, inclusive. It was transferred to the Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University of Louisiana in 1884 Present name in 1913, when it became the School of Medicine of the College of Medicine of the Tulane University of Louisiana The faculty has 27 professors and 89 assistant professors, instructors demonstrators etc , a total of 116 The course covers four years of thirty two weeks each One year of collegiate work is required for admission Two years of college work will be required for admission in 1918 and thereafter Total fees for each of the four years, respectively, are $190, $190, $185 and $215 The Dean is Dr Isadore Dyer The total registration for 1916–17 was 267, graduates 52 The eighty third session begins Sept 26 1917, and ends June 5, 1918

MAINE

Main, population 767,638, has one medical college, the Bowdoin Medical School, located in Brunswick and Portland, the latter having a population of 62,161

Brunswick-Portland

Bowdoin Medical School. The Medical Department of Bowdoin College The first two years are given at Bowdoin College, Brunswick, the last two at Portland, building located on Chadwick Street.—Organized in 1820 as the Medical School of Maine The first class graduated in 1821 Present title assumed in 1915 The faculty numbers 66 *Two years* of collegiate work, including courses in physics, chemistry and biology are required for admission The course covers four years of eight months each The total fees for each of the four years, respectively, are $120, $120, $110 and $110 The Dean is Dr Addison S Thayer, 10 Deering Street Portland The total number of students in 1916–17 was 54, graduates, 10 The ninety seventh session begins Oct 11, 1917, and ends June 20, 1918

MARYLAND

Maryland, with a population of 1,351,941, contains two medical colleges, located in Baltimore, a city with 584,605 inhabitants They are as follows Johns Hopkins University Medical Department, and the University of Maryland School of Medicine and College of Physicians and Surgeons, the last two having been merged

To be eligible to practice medicine in Maryland, all students matriculating in the session of 1914-15 and thereafter, must have in addition to a four-year high school education, must have completed a year of college work including courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine Students matriculating in 1918-19 and thereafter must have completed *two years* of college work.

Baltimore

Johns Hopkins University Medical Department, Washington and Monument Streets.—Organized in 1893 The first class graduated in 1897 The faculty consists of 48 professors and 129 clinical professors, etc. a total of 177 The requirements for admission demand that the applicant either has (*a*) completed the chemical biologic course which leads to the A.B degree in the university, or (*b*) graduated at an approved college or scientific school and has a knowledge of French and German, physics, chemistry and biology, such as may be obtained from a year's course The course extends over four years of eight and one half months each The total fees are $257 each year The Dean is Dr J Whitridge Williams. Total registration for 1916–17 was 359, graduates, 92 The twenty fifth session begins Oct. 2, 1917, and ends June 11, 1918

University of Maryland School of Medicine and the College of Physicians and Surgeons, Lombard and Green Streets.—Organized in 1807 as the College of Medicine of Maryland The first class graduated in 1810 In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged into it in 1913 In 1915 the College of Physicians and Surgeons was merged and the present name assumed The combined faculty numbers 166 A year of collegiate work is required for admission Beginning with the session of 1918–19 *two years* of college work will be required The course covers four years of eight months each The total fees are $170 each year, graduation fee, $30 The Dean is Dr J M H Rowland Total registration for 1916–17 was 298, graduates, 82 The one hundred and eleventh session begins Oct. 1, 1917, and ends June 3, 1918

MASSACHUSETTS

Massachusetts, population 3,662,339, has four medical colleges Medical School of Harvard University, Boston University School of Medicine, College of Physicians and Surgeons and Tufts College Medical School They are all situated in Boston, a city of 745,139

Boston

Medical School of Harvard University 240 Longwood Avenue — Organized in 1782 The first class graduated in 1788 It has a faculty of 57 professors and 187 instructors and assistants, a total of 244 Candidates for admission must present a college degree or two years of work leading to such a degree with standing in the upper third of the class The college work must include a year of physics, biology general chemistry, a half year of organic chemistry, and a reading knowledge of French or German The total fee for each year is $225 The Dean is Dr Edward H Bradford The total registration for 1916–17 was 357; graduates, 67 The one hundred and thirty sixth session begins Sept 24 1917, and ends June 20, 1918

Boston University School of Medicine, 80 East Concord Street — Organized in 1873 In 1874 the New England Female Medical College, founded in 1848, was merged into it The first class graduated in 1874 *Two years* of collegiate work are required for admission The faculty includes 23 professors, 46 associates, etc., making a total of 69 The course covers four years of eight months each Total fees for each of the four years respectively, are $170, $157, $157 and $180 The Dean is Dr John P Sutherland Total registration for 1916–17 was 62, graduates, 24 The forty fifth session begins Oct. 4, 1917, and ends June 5, 1918

Tufts College Medical School, 416 Huntington Avenue —Organized in 1893 as the Medical Department of Tufts College The first class graduated in 1894 It has a faculty of 41 professors and 83 assistants, lecturers, etc , a total of 124 One year of collegiate work is required for admission *Two years* of college work will be required for the session of 1918–19 and thereafter The course covers four years of eight months each The total fees for each of the four years are $159 50, $162, $155 and $155 The Dean is Dr Charles F Painter Total registration for 1916–17 was 383, graduates, 76 The twenty fourth session begins Sept. 20 1917, and ends June 17, 1918

College of Physicians and Surgeons, 517 Shawmut Avenue —Organized in 1880 The first class graduated in 1882 Total attendance of medical students during 1916–17 was about 53 There were 11 graduates *This college has been reported not recognized by the Massachusetts Medical Society and by the licensing boards of thirty-nine states*

MICHIGAN

Michigan, population 3,015,442, has three medical colleges Two of these, the University of Michigan Department of Medicine and Surgery and the Homeopathic Medical College of the University of Michigan, are located at Ann Arbor, a city of 14,979 people The Detroit College of Medicine and Surgery is located at Detroit, a city of 554,717 inhabitants

To be eligible for license to practice medicine in Michigan, all students matriculating in and after the session of 1914-15, in addition to an accredited four-year high school education, must have completed at least one year's work in an approved college of liberal arts, including college courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine Students matriculating in 1918-19 (graduates of 1922) and thereafter will be required to have completed *two years* of such college work.

Ann Arbor

University of Michigan Medical School —Organized in 1850 as the University of Michigan Department of Medicine and Surgery The first class graduated in 1851 Present title assumed in 1915 It has a faculty composed of 22 professors and 69 associates, instructors, etc , a total of 91 The entrance requirements are *two years* of college work, including courses in chemistry, physics and biology with laboratory work, and a reading knowledge of one modern language The curriculum embraces four years of nine months each The total fees for Michigan students for each of the four years, respectively are $112, $102, $102 and $112, and for nonresidents, respectively, $147, $122, $122 and $132 The Dean is Dr Victor C Vaughan The total registration for 1916–17 was 322, graduates 62 The sixty eighth session begins Oct. 2, 1917, and ends June 27 1918

University of Michigan Homeopathic Medical School.—Organized in 1875 The first class graduated in 1877 The work of the first two years is taken in the same classes with the Medical School of the University of Michigan, and the fees charged are the same The entrance requirements are *two years* of collegiate work The Dean is Dr W B Hinsdale The total registration for 1916–17 was 48, graduates, 8 The next session begins Oct 2, 1917, and ends June 27, 1918

Detroit

Detroit College of Medicine and Surgery, 250 St Antoine Street — Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College organized in 1868 and the Michigan College of Medicine organized in 1880. Reorganized with present title in 1913. The first class graduated in 1886. Entrance requirements for 1917–18 are one year of collegiate work; thereafter *two years* of college work will be required. The faculty embraces 23 professors 147 lecturers etc a total of 170. The course covers four years of eight months each. The fees for the four years respectively are $165 $155 $150 and $130. The Secretary is Dr W H MacCraken. The total registration for 1916–17 was 161 graduates 64. The thirty third session begins Sept. 24 1917 and ends May 29 1918.

MINNESOTA

Minnesota population 2,226,761 contains one medical school the University of Minnesota Medical School situated in Minneapolis a city of 353,460 inhabitants

Candidates for license to practice medicine in Minnesota who graduated subsequent to June 1 1912 in addition to an accredited four-year high school education must have completed *two years* of work the equivalent of that done in the liberal arts department of the University of Minnesota including courses in physics chemistry and biology, prior to beginning the study of medicine

Minneapolis

University of Minnesota Medical School —Organized in 1883 as the University of Minnesota College of Medicine and Surgery reorganized in 1888 by absorption of St Paul Medical College and Minneapolis Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons organized in 1883 was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. The faculty includes 54 professors and 91 instructors and assistants a total of 151. The curriculum covers four years of nine months each and a year's internship in an approved hospital. The entrance requirements are *two years* of university work which must include one year each of physics general chemistry qualitative analysis zoology or botany and French or German all in addition to a four year high school course including two years of Latin. Students entering hereafter will be required to secure a degree of B S or A B before the M D is granted. Total fees are $150 each year. The Dean is Dr E. P Lyon. The total registration for 1916–17 was 265 graduates 17. The thirtieth session begins Oct 10 1917 and ends June 20 1918.

MISSISSIPPI

Mississippi, population 1,926,778 has one medical college, the Department of Medicine of the University of Mississippi which is located at Oxford a city of 2,014 inhabitants

Candidates for license to practice medicine in Mississippi who matriculate in the session of 1915 16 and thereafter in addition to a standard four-year high school education must have completed a year's work in an approved college or university, including courses in physics chemistry, biology and a modern language before entering on the study of medicine.

Oxford

University of Mississippi School of Medicine.—Organized in 1903. Gives only the first two years of the medical course. In 1908 a clinical department was established at Vicksburg but was discontinued in 1910 after graduating one class. The session extends over eight and a half months. Entrance requirements for 1917–18 are one year of collegiate work in addition to an accredited four year high school education thereafter *two years* of college work will be required. The total fees each year are $122. The faculty numbers 18. The Dean is Dr W S Leathers. The total registration for 1916–17 was 60. The fifteenth session begins Sept 19 1917 and ends June 4 1918

MISSOURI

Missouri population 3,391,789, has eight medical colleges St. Louis, population 745,988, contains four of these viz. the School of Medicine of St. Louis University, Washington University Medical School the Medical Department of the National University of Arts and Sciences, and the St. Louis College of Physicians and Surgeons. Kansas City, with a population of 289,879 has three colleges the Electic Medical University, the Kansas City College of Medicine and Surgery and the Southwest School of Medicine and Hospital. The School of Medicine of the University of Missouri is at Columbia, a town of 12,103 people.

Columbia

University of Missouri School of Medicine.—Organized at St Louis in 1845 was discontinued in 1855 but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 10 professors and 15 assistant professors lecturers etc. a total of 25. The course covers two years of nine months each. The entrance requirements are *two years* of college work including French or German, 8 hours general zoology, 8 hours physics 8 hours inorganic chemistry 8 hours and general bacteriology 3 hours. Total fees are $73 for the first and $45 for the second year. The acting Dean is Dr Guy L Noyes. Total registration for 1916–17 was 85. The next session begins Sept. 17 1917, and ends June 5 1918

Kansas City

Eclectic Medical University, 309 East Tenth Street —Organized at Kansas City Mo in 1898 with the present title. Moved to Kansas City Kan., in 1907 and took the name of Western Eclectic College of Medicine and Surgery. Returned to Kansas City, Mo in 1909 and resumed the present title. First class graduated in 1900. The faculty numbers 4. Total fees are $150 per year. The Secretary is Dr Samuel McCubbin. The total registration for 1916–17 was 31 graduates 11. The next session begins Sept 10 1917 and ends May 3 1918. *Reported not in good standing by the Missouri State Board of Health and by thirty other state licensing boards*

Kansas City College of Medicine and Surgery, Eclectic, Twenty Third and Holmes Streets—An offshoot of the Eclectic Medical University organized in 1915. Total registration for 1916–17 was 114 graduates 1. Since this school is an offshoot of a Class C medical college and is *reported not recognized by the Missouri State Board of Health* no higher rating can be granted to it pending an inspection

St Louis

Washington University Medical School, Kingshighway and Euclid Avenue —Organized in 1842 as the Medical Department of St Louis University. In 1855 it was chartered as an independent institution under the name of St Louis Medical College. The first class graduated in 1843. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. The faculty comprises 30 professors and 78 lecturers instructors etc a total of 108. *Two full years* of college work are required for admission including courses in English physics chemistry and biology and a reading knowledge of German. The course is four years of eight months each. The total fees for the four years are respectively $155 $150 $150 and $155. The Dean is Dr Philip A Shaffer. The total registration for 1916–17 was 125 graduates 31. The next session begins Sept 27 1917 and ends June 13, 1918

St Louis University School of Medicine, 1402 South Grand Avenue —Organized in 1901 as the Marion Sims-Beaumont Medical College by union of Marion Sims Medical College organized in 1890 and Beaumont Hospital Medical College organized in 1886. First class graduated in 1902. It became the Medical Department of St Louis University in 1903. The faculty is composed of 45 professors 75 lecturers and assistants a total of 120. One year of college subjects preliminary to the four years of medical subjects is given in the medical school. After Nov 1 1917 *two years* of collegiate work will be required for admission. The curriculum covers four years of thirty two weeks each. The total fees are $155 each year. The Dean is Dr Hanau W Loeb. The total registration for 1916–17 was 254 graduates 41. The next session begins Oct 1 1917 and ends June 1 1918

National University of Arts and Sciences Medical Department, Garrison and Lawton Avenues —Organized in 1873 as the American Medical College and Eclectic Institution. Eclecticism dropped in 1910. Absorbed the Barnes Medical College in 1911. Became the Medical Department of the National University of Arts and Sciences in 1912. St Louis College of Physicians and Surgeons was merged in 1915 but withdrew in 1916. Two classes were graduated each year from 1874 to 1893 inclusive. Since then one class has graduated each year. The Secretary is Dr J L Cooley. The total registration for 1916–17 was 64 graduates 38. The next session begins June 1 1917 and ends Feb 5 1918

St Louis College of Physicians and Surgeons, Jefferson and Gamble Streets —Organized in 1869. Classes graduated in 1870 and each subsequent year until 1873 when it suspended. Reorganized in 1879. Classes graduated in 1880 and subsequent years until 1915 when it merged with the Medical Department of the National University of Arts and Sciences. Reestablished in 1916. Total fees each year are $140 graduation fee $25. The Secretary is Dr E L Marks. Registration during 1916–17 was 46 graduates 11. The next session begins Oct. 1 1917 and ends June 3 1918

NEBRASKA

Nebraska population 1,258,624 has three medical colleges The University of Nebraska College of Medicine and the John A. Creighton Medical College of Omaha, population 135,455 and the Lincoln Medical College at Lincoln, population 46,028

Lincoln

Lincoln Medical College, Eclectic, Corner 13th and P Streets Lincoln —Organized in 1890 as the Lincoln Medical College. The first class graduated in 1891. Became Cotner University Medical College in 1911. Affiliation with Cotner University canceled and present title resumed in 1915. The Dean is Dr F L Wilmeth. The total registration for 1916–17 was 25 graduates 4. The next session begins Sept. 15 1917, and ends June 1 1918. *Official reports indicate that diplomas from this college are not recognized by the licensing boards of thirty five states*

Omaha

John A. Creighton Medical College, Fourteenth and Davenport Streets. It is the Medical Department of Creighton University — Organized in 1892. The first class graduated in 1893. It has a faculty of 18 professors and 36 associates lecturers and assistants a total of 54. One year of collegiate work is required for admission. Beginning with the session of 1918–19 *two years* of collegiate work will be required. The course of study embraces four years of eight months each. The total fees each year for the four years are respectively $157, $147 $147 and $152. The Dean is Dr James Ross Clemens. Total registration for 1916–17 was 108 graduates 43. The thirty sixth session begins Sept. 21 1917 and ends June 1 1918 year except in 1863 In 1846 the present name was assumed In 1907 it absorbed the Kentucky University Medical Department In 1908 it absorbed the Louisville Medical College the Hospital College of Medicine and the Kentucky School of Medicine One year of collegiate work is required for admission It has a *faculty of 30 professors* and 64 lecturers and assistants, a total of 94 The course covers four years of thirty two weeks each The fees for each of the four years, respectively, are $175, $176, $179 and $183 The *Dean is Dr* Henry Enos Tuley The total registration for 1916–17 was 118, *graduates, 66* The next session begins Sept. 25, 1917, and ends June 6, 1918

LOUISIANA

Louisiana, having a population of 1,801,306, contains one medical college, the School of Medicine of the Tulane University of Louisiana, situated in New Orleans, a city of 366,484

Candidates for license to practice medicine in Louisiana who graduate in 1919 and 1922 must present evidence that they had successfully completed, at an approved college or university, respectively, one year and *two years* of work including biology, physics, chemistry and a modern language, before entering on the study of medicine These requirements apply to all students who matriculated, respectively, in 1915 and 1918

New Orleans

Tulane University of Louisiana School of Medicine University Campus and 1551 Canal Street —Organized in 1834 as the Medical College of Louisiana Classes were graduated in 1835 and in all subsequent years, except *1863 65*, inclusive It was transferred to the Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University of Louisiana in 1884 Present name in 1913 when it became the School of Medicine of the College of Medicine of the Tulane University of Louisiana The faculty has 27 professors and 89 assistant professors, instructors, demonstrators, etc , a total of 116 The course covers four years of thirty two weeks each One year of collegiate work is required for admission Two years of college work will be required for admission in 1918 and thereafter Total fees for each of the four years, respectively, are *$190, $190,* $185 and $215 The Dean is Dr Isadore Dyer The total registration for 1916–17 was 267, graduates, 52 The eighty third session begins Sept. *26* 1917, and ends June 5, 1918

MAINE

Main, population *767,638*, has one medical college, the Bowdoin Medical School located in Brunswick and Portland, the latter having a population of 62,161

Brunswick-Portland

Bowdoin Medical School. The Medical Department of Bowdoin College The first two years are given at Bowdoin College, Brunswick, the last two at Portland building located on Chadwick Street —Organized in 1820 as the Medical School of Maine The first class graduated in 1821 Present title assumed in *1915* The faculty numbers 66 *Two years* of collegiate work, including courses in physics, chemistry and biology are required for admission The course covers four years of eight months each The total fees for each of the four years, respectively, are $120, $120, $110 and $110 The Dean is Dr Addison S Thayer, 10 Deering Street, Portland The total number of students in *1916–17* was 54, graduates, 10 The ninety seventh session begins Oct 11, 1917, and ends June 20, 1918

MARYLAND

Maryland, with a population of 1,351,941, contains two medical colleges, located in Baltimore, a city with 584,605 inhabitants They are as follows Johns Hopkins University Medical Department, and the University of Maryland School of Medicine and College of Physicians and Surgeons, the last two having been merged

To be eligible to practice medicine in Maryland, all students matriculating in the session of 1914-15 and thereafter, in addition to a four-year high school education, must have completed a year of college work including courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine Students matriculating in 1918-19 and thereafter must have completed *two years* of college work

Baltimore

Johns Hopkins University Medical Department, Washington and Monument Streets —Organized in *1893* The first class graduated in 1897 The faculty consists of 48 professors and 129 clinical professors, etc a total of 177 The requirements for admission demand that the applicant either has (*a*) completed the chemical biologic course which leads to the A B degree in the university, or (*b*) graduated at an approved college or scientific school and has a knowledge of French and German, physics, chemistry and biology, such as may be obtained from a year's course. The course extends over four years of eight and one-half months each The total fees are $257 each year The Dean is Dr J Whitridge Williams Total registration for 1916–17 was 359, graduates, *92* The twenty fifth session begins Oct 2, 1917, and ends June 11, 1918

University of Maryland School of Medicine and the College of Physicians and Surgeons, Lombard and Green Streets.—Organized in *1807* as the College of Medicine of *Maryland The first* class graduated *in 1810* In *1812* it became the University of Maryland School of Medicine Baltimore Medical College was merged into it in *1913* In 1915 the College of *Physicians* and Surgeons was merged and the present name assumed The combined faculty numbers 166 A year of collegiate work is required for admission Beginning with the session of 1918–19 *two years of college work will be required* The course covers four years of eight months each The total fees are $170 each year, graduation fee, *$30* The Dean is Dr J M H Rowland Total registration for 1916–17 was *298, graduates, 82* The *one* hundred and eleventh session begins Oct. 1, *1917*, and ends June *3, 1918*

MASSACHUSETTS

Massachusetts, population 3,662,339, has four medical colleges Medical School of Harvard University, Boston University School of Medicine, College of Physicians and Surgeons and Tufts College Medical School They are all situated in Boston, a city of 745,139

Boston

Medical School of Harvard University 240 Longwood Avenue — Organized in 1782 The first class graduated in 1788 It has a faculty of 57 professors and 187 instructors and assistants, a total *of 244* Candidates for admission must present a college degree or two years of work leading to such a degree with standing in the upper third of the class. The college work must include a year of physics biology, general chemistry, a half year of organic chemistry, and a reading knowledge of French or German The total fee *for each* year is *$225* The Dean is Dr Edward H Bradford The total registration for 1916–17 was *357*, graduates, 67 The one hundred and thirty sixth session begins Sept 24 1917, and ends June *20, 1918*

Boston University School of Medicine, 80 East Concord Street — Organized in 1873 In 1874 the New England Female Medical College founded in 1848, was merged into it The first class graduated in 1874 *Two years* of collegiate work are required for admission The faculty includes 23 professors, 46 associates, etc , making a total of *69* The course covers four years of eight months each Total fees for each of the four years, respectively, are *$170, $157, $157* and $180 The Dean is Dr *John* P *Sutherland* Total registration for 1916–17 was 62, graduates, 24 The forty fifth session begins Oct. 4, 1917, and ends June 5, 1918

Tufts College Medical School, 416 Huntington Avenue —Organized in 1893 as the Medical Department of Tufts College The first class graduated in 1894 It has a faculty of 41 professors and 83 assistants, lecturers, etc., a total of *124* One year of collegiate work is required for admission *Two years* of college work will be required for the session of 1918–19 and thereafter The course covers four years of eight months each The total fees for each of the four years are *$159 50*, $162 $155 and $155 The Dean is Dr Charles F Painter Total registration for 1916–17 was 383, graduates, *76* The twenty fourth session begins Sept. *20* 1917, and ends June *17*, 1918

College of Physicians and Surgeons, 517 Shawmut Avenue.—Organized *in 1880* The *first* class graduated in 1882 Total attendance of medical students during *1916–17* was about 53 There were 11 graduates *This college has been reported not recognized by the Massachusetts Medical Society and by the licensing boards of thirty nine states*

MICHIGAN

Michigan, population 3,015,442, has three medical colleges Two of these, the University of Michigan Department of Medicine and Surgery and the Homeopathic Medical College of the University of Michigan, are located at Ann Arbor, a city of 14,979 people The Detroit College of Medicine and Surgery is located at Detroit, a city of 554,717 inhabitants

To be eligible for license to practice medicine in Michigan, all students matriculating in and after the session of 1914-15, in addition to an accredited four-year high school education, must have completed at least one year's work in an approved college of liberal arts, including college courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine Students matriculating in 1918-19 (graduates of 1922) and thereafter will be required to have completed *two years* of such college work.

Ann Arbor

University of Michigan Medical School —Organized in 1850 as the University of Michigan Department of Medicine and Surgery The first class graduated in 1851 Present title assumed in 1915 It has a *faculty composed* of *22* professors and 69 associates, instructors, etc , a total of *91* The entrance requirements are *two years* of college work, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of one modern language The curriculum embraces *four years* of nine months each The total fees *for Michigan* students for each of the four years, respectively, are $112, $102, $102 and *$112*, and for nonresidents, respectively, *$147*, $122, *$122* and *$132* The Dean is Dr Victor C Vaughan The total registration *for 1916–17* was 322, graduates, 62 The sixty eighth session begins Oct. 2, 1917, and ends June 27, 1918

University of Michigan Homeopathic Medical School —Organized in 1875 The first class *graduated* in *1877* The work of the first two years is taken in the same classes with the Medical School of the University of *Michigan*, and the fees charged are the same The entrance requirements are *two years* of collegiate work The Dean is Dr W B Hinsdale The total registration for 1916–17 was 48, graduates, 8 The next session begins Oct 2, 1917, and ends June 27, 1918 courses in physics chemistry and biology in addition to 14 units of high school work to be eligible for a license to practice medicine in North Carolina

Chapel Hill

University of North Carolina School of Medicine.—Organized in 1890 Until 1902 this school gave only the work of the first two years when the course was extended to four years by the establishment of a department at Raleigh The first class graduated in 1903 A class was graduated each subsequent year including 1910 when the clinical department at Raleigh was discontinued *Two years* of collegiate work are required for admission The faculty is composed of 12 professors and 12 lecturers assistants etc a total of 24 The total fees for the two years respectively are $1[illegible]4 50 and $1[illegible]7 50 The Dean is Dr I H Manning The total registration for 1916-17 was 64 The thirty second session begins Sept 11 1917 and ends June 5 1918

Raleigh

Leonard Medical School.—Colored This department of Shaw University was established in 1882 Classes were graduated in 1886 1888 and in all subsequent years including 1914 when clinical teaching was discontinued A year of collegiate work is required for admission It has a faculty of 8 The course covers four years of eight months each The total fees for each year are $115 The Dean is Dr George H Sollard Total registration for 1916-17 was 8 The thirty sixth session begins Sept 26 1917 and ends May 9 1918

Wake Forest

Wake Forest College School of Medicine.—This school was organized in 1902 The faculty including the professors of chemistry physics and biology numbers 11 Only the first two years of the medical course are offered after the completion of freshman and sophomore college work and on this combined course the B S degree is conferred Each annual course extends over nine months The fees for each year aggregate $115 The Secretary is E B Earnshaw The total registration for 1916-17 was 32. The sixteenth session begins Sept. 4 1917 and ends May 24 1918

NORTH DAKOTA

North Dakota population 713083 has one medical college the School of Medicine of the University of North Dakota, which is situated at University a suburb of Grand Forks a city of 15332 people It gives only the first two years of the medical course

Candidates for license to practice medicine in North Dakota who graduated in 1912 and thereafter in addition to a four year high school education must have completed *two years* of work in an approved college of liberal arts including courses in Latin physics chemistry, botany and zoology, prior to beginning the study of medicine Beginning in 1918 every applicant for a license must show evidence of having spent at least one year as an intern in a hospital

University

University of North Dakota School of Medicine.—Organized in 1905 The faculty is composed of 4 professors and 12 instructors a total of 16 The course consists of *two years* of academic work and two years of medicine occupying nine months each year The total fee for each of the medical years is $50 The Dean is Dr Harley E French The total registration for 1916–17 was 33 The twelfth session begins Oct. 6 1917 and ends June 26 1918

OHIO

Ohio, population 5,038 627 has five medical colleges Two of these the Medical College of the University of Cincinnati and the Eclectic Medical College are located in Cincinnati, a city of 406,706 inhabitants Cleveland, population 656 975 contains one medical school Western Reserve University School of Medicine. Columbus population 209,722 contains the two departments of the Ohio State University, the College of Medicine and the College of Homeopathic Medicine.

Cincinnati

University of Cincinnati College of Medicine Eden Avenue Cincinnati General Hospital.—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852) The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896 Under a similar agreement, March 2 1909 the Miami Medical College also merged into the University when the title of Ohio Miami Medical College of the University of Cincinnati was taken Present title assumed in 1915 *Two years* of college work are required for admission The faculty consists of 43 professors 113 associates assistants etc., a total of 156 The course covers four years of eight months each The fees for each of the first three years are $150 and for the fourth year $170 The Dean is Dr Christian R. Holmes The total registration for 1916–17 was 94 graduates 14 The next session begins Oct. 2 1917 and ends June 15 1918

Eclectic Medical College, 630 West Sixth Street.—Organized in 1833 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843 In 1845 it was chartered as the Eclectic Medical Institute In 1857 the American Medical College organized in 1839, was merged into it and in 1859 the Eclectic College of Medicine and Surgery organized in 1856 was merged into it In 1910 it assumed its present title Classes were graduated in 1833 and in all subsequent years except 1839 to 1843 inclusive It has a faculty of 26 professors and 8 lecturers and assistants a total of 34 One year of college work is required for admission The course covers four years of eight months each The fees are $120 for each year, matriculation fee $5 graduation fee $10 The Secretary is Dr John K Scudder Total registration for 1916–17 was 97 graduates 29 The next session begins Sept 14 1917, and ends May 14 1918

Cleveland

Western Reserve University School of Medicine, 1353 East Ninth Street.—Organized in 1843 as the Cleveland Medical College The first class graduated in 1844 It assumed the present title in 1881 In 1910 it absorbed the Cleveland College of Physicians and Surgeons The faculty includes 40 professors and 67 lecturers assistants etc a total of 107 The curriculum embraces four years of eight and one half months each Three years of college work are required for admission The total fees for each of the four years are respectively $175 $160 $154 and $155 The Dean is Dr C A Hamann The total registration for 1916–17 was 165 graduates 32 The seventy fifth session begins Sept 27 1917 and ends June 13, 1918

Columbus

Ohio State University College of Medicine Buttles Avenue and Park Street.—Organized in 1907 as the Starling Ohio Medical College by the union of Starling Medical College (organized 1847) with the Ohio Medical University (organized 1890) In 1914 it became an integral part of the Ohio State University with its present title The faculty consists of 30 professors and 61 lecturers demonstrators etc a total of 91 *Two years* of collegiate work are required for admission The course covers four years of eight months each Tuition fees are $152 each year The Dean is Dr E J McCampbell The total registration for 1916–17 was 142 graduates 65 The next session begins Sept 18 1917 and ends June 18 1918

Ohio State University College of Homeopathic Medicine.—Organized in 1914 when the property of the Cleveland Pulte Medical College of Cleveland was transferred to the Ohio State University The faculty numbers 26 *Two years* of college work are required for admission The students are taught largely in the same classes and by the same teachers as students of the College of Medicine during the first two years. Tuition fees are $152 each year The Dean is Dr Claude A Burrett The total registration for 1916–17 was 36 graduates, 8 The third session begins Sept 18 1917, and ends June 18 1918

OKLAHOMA

Oklahoma population 2 114 307, has one medical college, the School of Medicine of the University of Oklahoma The work of the first and second years is given in the academic laboratories at Norman, a city of 3 724 inhabitants The work of the third and fourth years is given in Oklahoma City which has a population of 88 158 and which is eighteen miles north of Norman

To be eligible for license to practice medicine in Oklahoma all students matriculating in 1914-15, in addition to a four-year high school education must have completed at least one year of work in an approved college of liberal arts, including courses in physics chemistry biology and a modern language prior to beginning the study of medicine For students matriculating in and after 1917-18, *two years* of preliminary college work will be required

Norman and Oklahoma City

University of Oklahoma School of Medicine.—Organized in 1900 Gave only the first two years of the medical course at Norman until 1910 when a clinical department was established at Oklahoma City It has a faculty of 49 professors and 17 instructors a total of 66 *Two years* of collegiate work are required for admission The course is four years of nine months each An optional course of six years is offered for the degrees of B S and M D The total fees for the four years are respectively $43 $23 $25 and $25 The Dean is Dr Leroy Long 325 East Fourth Street, Oklahoma City The total registration for 1916–17 was 85 graduates 24 The eighteenth session begins Sept. 18 1917 and ends June 4 1918

OREGON

Oregon, population 809 490 has one medical college the University of Oregon Medical School, located in Portland, a city of 272 833 population

Portland

University of Oregon Medical School, Lovejoy and Twenty Third Streets.—Organized in 1887 The first class graduated in 1888 A class graduated each subsequent year except 1898 Became an integral part of the University of Oregon in 1910 The Willamette University Medical Department was merged in 1913 It has a faculty of 20 professors and 58 lecturers assistants etc. a total of 78 Entrance requirements are *two years* of college work or its equivalent The course is four years of eight months each Fees Matriculation $5 tuition $150 each year The Dean is Dr K A J Mackenzie The total registration for 1916–17 was 72 graduates, 12 The thirty first session begins Oct. 1 1917 and ends June 1 1918

PENNSYLVANIA

Pennsylvania, population 8 383,992, has six medical colleges Of these, Philadelphia, having a population of 1,683 664, contains five, as follows University of Pennsyl-

Ferrara—Libera Universita degli Studi di Ferrara
Florence—Regia Instituto di Studi Superiori, Practici e di Perfezionamento
Genoa—Regia Universita degli Studi
Messina—Regia Università degli Studi.
Modena—Regia Università degli Studi.
Naples—Regia Universita degli Studi
Padua—Regia Università degli Studi
Palermo—Regia Università degli Studi.
Parma—Regia Universita degli Studi
Pavia—Regia Universita degli Studi
Perugia—Universita Libra degli Studi
Pisa—Regia Universita degli Studi
Rome—Regia Università degli Studi
Sassari—Regia Universita degli Studi.
Siena—Regia Universita degli Studi
Turin—Regia Universita degli Studi

JAPAN

Chiba—Chiba Special Medical School
Fukuoka—Kyushu Imperial University, Medical College
(Formerly a part of Kyoto Imperial University)
Kanazawa—Kanazawa Special Medical School
Kumamota—Kumamota Special Medical School
Kyoto—Kyoto Imperial University, Medical College.[1]
Kyoto—Kyoto Prefecture, Special Medical School
Mukden—South Manchuria Medical School
Nagasaki—Nagasaki Special Medical School
Nagoya—Aichi Prefecture, Special Medical School
Niigata—Niigata Special Medical School
Okayama—Okayama Special Medical School
Osaka—Osaka Prefecture, Higher Medical School[1]
Sendai—Tohoku Imperial University, Medical College[1]
Sendai—Tohoku Imperial University, Special Medical Department
(This is a reorganization of the old Sendai Special Medical School Made a part of Tohoku Imperial University in March, *1912*, under the name of Special Medical Department.)
Tansui, Taiwan—Taiwan (Formosa) Medical School[2]
Tokyo—Nippon Special Medical School[3]
Tokyo—Sai Sai Medical College (Extinct August, *1903*)
Tokyo—Tokyo Charity Hospital Special Medical School
Tokyo—Tokyo Imperial University, Medical College.[1]
Tokyo—Tokyo Woman's Special Medical School[3]

1 For admission require graduation from the "Third Department of the Higher Schools," which covers three years of premedical training following graduation from the Middle Schools.

2 A medical school conducted by the Japanese Government, primarily for the aborigines of Taiwan (Formosa) Only a common school education required for admission Graduates licensed to practice in Tansui only

3 Graduates not licensed by the Japanese Government unless they pass a special examination

JAVA

Batavia—Schoot Tot Opleiding van Inl Artsen

KOREA

Seoul—Union Medical School

MADAGASCAR

Tananarive—L'Ecole de Medecine

MALAYA

Singapore—Malaya Medical School

MEXICO

Guadalajara—Escuela de Medicina y de Farmacia de Jalisco
Mexico—Escuela Nacional de Medicina
Monterey—Escuela de Medicine de Nuovo Leon

NETHERLANDS

Amsterdam—Universiteit van Amsterdam
Groningen—Rijks Universiteit te Groningen.
Leyden—Rijks Universiteit.
Utrecht—Rijks Universiteit

NEW ZEALAND

Wellington—University of New Zealand (affiliated with the University of Cambridge, England)

NICARAGUA

Leon—Universidad de Nicaragua

NORWAY

Christiania—Kongelige Frederiks Universitet.

PERSIA

Urumia—Urumia College Medical Department.

PERU

Lima—Universidad Mayor de San Marcos.

PORTUGAL

Coimbra—Universidade de Coimbra
Lisbon—Escola Medico Cirurgica
Oporto—Escola Medico Cirurgica

ROUMANIA

Bukharest—Universitatea din Bucuresti
Jassy—Universitatea din Jasi

RUSSIA

Helsingfors, Finland—Kejserliga Alexanders Universitet
Jurjev (formerly Dorpat)—Imperatorski Jurjevskij Universitet.
Kazan—Imperatorskij Kasanskij Universitet.
Kharkov—Imperatorskij Charkovskij Universitet
Kief—Imperatorskij Universitet Sv Vladimira
Moscow—Imperatorskij Moskovskii Universitet
Odessa—Imperatorskij Novorossijskij Universitet.
Tomsk, Siberia—Tomskij Universitet.
Warsaw—Imperatorskij Varsavskij Universitet.

SANTO DOMINGO

Santo Domingo—University of Santo Domingo

SCOTLAND

Aberdeen—University of Aberdeen
Dundee—University of St Andrews (University College)
Edinburgh—University of Edinburgh
Edinburgh—School of Medicine of the Royal Colleges (including the Surgeons' Hall School)
Glasgow—University of Glasgow (including Queen Margaret College)
Glasgow—Anderson's College Medical School
Glasgow—St. Mungo's College and Glasgow Royal Infirmary
Glasgow—Western Medical School

SIAM

Bangkok—Royal Medical College

SOUTH AFRICA

Cape Town—South African Medical College.

SPAIN

Barcelona—Universidad de Barcelona
Cadiz—Facultad de Medicina
Granada—Universidad de Granada
Madrid—Universidad de Central de Espana
Santiago—Universidad
Saragossa—Universidad
Seville—Universidad de Sevilla (To this university also belongs the Medical Faculty at Cadiz)
Valencia—Universidad
Valladolid—Universidad

SWEDEN

Lund—Kungl Karolinska Universitetet
Stockholm—Karolinska Institutet (Medico Chirurgical Institute)
(This institute has the same chancellor as the universities at Lund and Upsala, and is guided by a similar constitution)
Upsala—Kungl Universitetet i Upsala.

SWITZERLAND

Basel—Universität.
Berne—Kantonale Universität
Fribourg—Universität
Geneva—Université de Genève.
Lausanne—Université
Neu Chatel—Universität.
Zurich—Universität.

SYRIA

Beirut—Syrian Protestant College
Beirut—Université Saint Joseph de Beyrouth

TURKEY

Constantinople—University of Constantinople (Another medical department of this university is located at Damascus)

URUGUAY

Montevideo—Universidad

VENEZUELA

Caracas—Universidad Central de Venezuela

WALES

Cardiff—University of Wales (Cardiff School of Medicine)
(Gives only the first three years of the medical course)

MEDICAL COLLEGES OF THE WORLD

Nation	Colleges	Nation	Colleges
Argentine	2	Java	1
Australia	4	Korea	1
Austria	7	Madagascar	1
Belgium	4	Malaya	1
Bolivia	2	Mexico	3
Brazil	3	Netherlands	4
Canada	9	New Zealand	1
Chile	1	Nicaragua	1
China	26	Norway	1
Colombia	1	Persia	1
Cuba	1	Peru	1
Denmark	1	Portugal	3
Ecuador	1	Roumania	2
Egypt	1	Russia	9
England	21	Santo Domingo	1
France	7	Scotland	8
Germany	20	Siam	1
Greece	1	South Africa	1
Guatemala	1	Spain	9
Haiti	1	Sweden	3
Honduras	1	Switzerland	7
Hungary	3	Syria	2
Iceland	1	Turkey	1
India	7	Uruguay	1
Ireland	4	United States	96
Italy	20	Venezuela	1
Japan	19	Wales	1

Total medical colleges in all countries	*331*
There are also about 20 sectarian schools in the United States, the graduates of which treat diseases, giving this country a total of	*116*

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SATURDAY, AUGUST 18, 1917

MEDICAL EDUCATION—SEVENTEENTH ANNUAL REPORT

The Journal publishes this week, for the seventeenth consecutive year, statistics regarding medical education in the United States. During these seventeen years there has been a most encouraging improvement. At the present time it can be stated without exaggeration that medical education in this country is equal, if not superior, to that of other leading countries.

FIRST PERIOD 1900-1905

In 1900, The Journal began collecting statistics regarding medical colleges, students and graduates, and in 1901 the first Educational Number of The Journal was published. At that time there were 159 medical colleges, many of which were joint stock corporations, conducted largely for profit. Admission requirements were nominal, few medical schools had endowments or well-equipped laboratories, and only a few had salaried teachers. On the whole, conditions in medical education were far from satisfactory. For the first five years the statistics were thus collected and published by The Journal, and a beginning was made in the great campaign for the improvement of medical education. The publication of the statistics appeared to have little effect on either the number or the standards of medical colleges, but the knowledge obtained made it clear that if improvements were to be made, a permanent committee and adequate funds would be necessary to enable continuous work to be done. In 1904, therefore, the American Medical Association created a permanent committee — the Council on Medical Education — which in 1905 secured an executive secretary. Then the collection and publication of these statistics naturally became a part of the Council's work.

PROGRESS FROM 1905 TO 1910

During the second five year period, 1905 to 1910, besides the collection and elaboration of these statistics, the Council on Medical Education began holding annual conferences on medical education, at which standards of preliminary and medical education were discussed. Also, in 1907 and 1909, respectively, two complete tours of inspection of the various medical colleges were made in order to secure more complete and accurate data regarding them. From the data thus collected, the first two classifications of medical schools were prepared, the second of which was published in 1910. At the annual conferences and in the published reports of the Council, a special plea was made for the merger of medical colleges in various cities so that one strong medical school might replace the two or more weak institutions in each city. By 1910 such mergers of medical schools had taken place in several cities, thirty-five colleges and eight state licensing boards had adopted higher requirements of preliminary education, new laboratories had been established, more schools had obtained full-time teachers, and hospital facilities had been greatly increased. The number of colleges declined from 162 to 131, the number of medical students from 28,142 to 21,526, and the number of graduates from 5,600 to 4,440. The reductions, as was expected, were due to the merging of the better grade but financially weaker colleges and the extinction of a number of the lowest type institutions. Since in 1907 it had been found that this country had nearly half of the world's supply of medical schools, it was evident that an abnormal oversupply of inferior colleges was giving way to a smaller number of higher grade and better equipped institutions.

PROGRESS FROM 1910 TO 1915

During the third five-year period — 1910 to 1915 — the Council established the students' register. In this, as in the previous activities, the Council received the cooperation of all the better medical colleges. During these five years also two other complete inspections of medical colleges were made and two new classifications published. This five-year period witnessed a further reduction of medical colleges from 131 to ninety-five, of medical students from 21,526 to 14,891, and of medical graduates from 4,440 to 3,536. This reduction in the number of medical colleges again was due to the merger of twenty medical schools with others, and to the closing of nineteen Class C institutions. Although the sum total of colleges was further decreased, there was a marked increase in the number of stronger and well-equipped institutions. The number of medical colleges which had adopted for admission one or two years of college work, in addition to a four-year high school education, was further increased from thirty-five (27 per cent.) to eighty-three (88 per cent.). Through a closer cooperation of the colleges with the Council in reports regarding new students enrolled, the methods employed by each institution in admitting students and the strictness in the enforcement of entrance standards were known with fair accuracy The continuous agitation for better conditions and publicity regarding the needs of medical education resulted in a marked increase in the endowments of medical schools, and large gifts for medical buildings, new laboratories, scholarships, endowed chairs and teaching hospitals had become of frequent occurrence The fall of 1914 witnessed the general adoption by the majority of medical colleges of the standard of preliminary and medical education, which in 1905 the Council on Medical Education had referred to as "ideal"

PROGRESS SINCE 1915

During the last two years, entrance requirements *have been further extended to two years of college* work, in addition to a high school education While this exceeded the original ideal standard, it was a more practical requirement, since the arrangement of the curriculum in colleges and universities did not permit them to offer three heavy science courses, with laboratory work, in a single year By June, 1916, the two-year standard had been adopted by forty-six medical schools and by seventeen state licensing boards At the meeting of the House of Delegates of the American Medical Association in 1916, the Council was instructed not to retain in Class A after Jan 1, 1918, any medical college which was not requiring two years of college work for admission The House of Delegates also adopted a recommendation that the two-year standard represented the highest preliminary qualification that should be required in this country

Under the increased entrance requirements, a material reduction in the number of medical students was to be expected Statistics have shown, however, that after a year or so has been allowed for rearrangements under the higher standards, the enrolments in medical schools are again increased It is noteworthy, therefore, that during the last three years the number of freshman students has increased in medical colleges which had adopted the higher standards three or more years previously Although the total numbers of medical students and graduates still shows a decrease, that decrease for the last few years has been in the students and graduates of the Class C colleges — and these the country can very well dispense with It should be a matter of congratulation that there are now between *sixty and* seventy medical schools in the United States graduating physicians trained as well as, if not better than, those from institutions in Europe, and that in the last fifteen years the numbers of medical students and graduates from these higher grade institutions[1] have been increased more than threefold

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[1] Report of the Council on Medical Education, Table 1, The Journal A M A, June 9, 1917, p 1758

HAY-FEVER AND POLLEN

The attention which has been paid in recent years to the problems of hay-fever has clearly established the exciting cause in the noxious pollen of a variety of plant forms The species involved have in common the feature that they are all wind-pollinated, so that the large quantity of pollen that they produce is distributed by the air and can readily reach the nasal passages Scheppegrell[1] has pointed out that the responsibility of the noxious plants for hay-fever depends, first, on the proximity of these plants, and, secondly, on the size of the pollen, which has an effect on their buoyancy For example, the pollen of corn, though very toxic, is rarely responsible for hay-fever because the comparatively large size of the particles (80 microns) limits the potential area of its distribution to a few yards from the plant, whereas the pollen of the common ragweed (measuring only 15 microns) has a buoyancy so great that a wind velocity of twenty miles will carry it several miles A spiculated surface tends to add to the buoyancy

Knowledge of the distribution of the plants most commonly associated with hay-fever in different parts of the country, together with a better understanding of the mechanisms of pollen dissemination, ought to pave the way for remedial procedures It has been remarked that when we observe the stringent laws enacted by various states for the exclusion of parasites injurious to their agricultural interests, suitable legislation for the protection of the large number of sufferers from hay-fever should present no difficulty The first item of importance is to learn the facts on which appropriate progress must depend It is now appreciated that the fall hay-fever of the Eastern states is due almost entirely to the pollen of *Ambrosia elatior,* the common ragweed According to the recent report of Scheppegrell,[1] however, the situation in the Pacific and Rocky Mountain states is more complicated, owing to the fact that in those regions the fall hay-fever is caused by the pollen of a larger number of plants These involve specimens of the *Artemisias, Ivas* and *Gaertnerias,* which include the popularly named mugwort and bur marsh elder

The time has arrived when special efforts should be made to eliminate all such species as far as possible from the neighborhood of populated areas Suitable grass-weed ordinances have already been proclaimed in certain regions The grass pollens are responsible for much of the early (vernal) form of hay-fever, and their exclusion presents the least difficulty, perhaps, because they have a considerable size and are not carried to a great distance When more details are known about other noxious forms, an educational campaign ought to be followed by success in amelioration of a most annoying factor that perennially recurs

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[1] Scheppegrell, William Hay Fever, Pub Health Rep, July 20, *1917, p 1135*

CONTACT INFECTION

One of the great dangers to health from the assembling of large numbers of soldiers in barracks and camps is contact infection. Under this head are included such modes of conveyance as the inhalation of the minute microbe-laden droplets sprayed out from the mouth in the act of sneezing, coughing, laughing or speaking, the contamination of the fingers from handled objects of all sorts, and other multifarious methods by which living pathogenic microorganisms are transferred. Running all through the phenomena of contact infection is the significant fact that the transference of disease germs is fairly direct and immediate, and that the share of inanimate objects—fomites—is relatively unimportant. It is the freshly smeared door knob or push-button, the man who is in the same company or who sleeps in the adjoining bed that is most commonly the source of infection. Under natural conditions the majority of the bacteria pathogenic for man do not seem to multiply outside of the human body, but progressively die off when once they leave their sheltering host. It is the direct contact, the fresh secretions that are most dangerous.

Although these facts are known, practical control over contact infection is a matter of much difficulty. The methods of quarantine and isolation that have long been practiced are in themselves but roughly adapted for this purpose. The well-recognized clinical case of typhoid, diphtheria or epidemic meningitis constitutes only a small part of the danger against which it is necessary to guard. The missed cases and the carrier cases complicate the whole problem enormously. A person who suffers from a mild infection often does not call a physician but continues to associate with his fellows and may communicate disease to many others. He and they alike are ignorant of what is taking place. The discovery of such mild or atypical cases is one of the familiar objects of medical school inspection; it is equally important in military camps.

But this procedure again, even if successful, removes only part of the difficulty. In some diseases the dissemination of infection may occur before the manifestation of definite symptoms. The precocious carriers are a real menace in some infections. There is no need to dwell here on the importance of the convalescent carriers and healthy carriers in spreading disease. Specific pathogenic bacteria persist in a certain proportion of persons long after complete clinical recovery has taken place; pathogens are also found in some persons who apparently have never suffered from the specific disease and who show no symptoms of infection at the time of this finding or later. The healthy carrier can be detected *only* by a bacterial examination; and such an examination is by no means practicable in all cases.

The problem of preventing contact infection in military encampments is, therefore, one not readily solved. In epidemic meningitis, for instance, which experience has shown is likely to occur in winter camps, it is possible to isolate frank cases and to a certain extent those known to have been in close personal contact with such cases, but there are obvious practical limits to the isolation of contacts and to the degree of bacterial supervision that can be exercised over the troops. The changing personnel of the camp with the likelihood of the frequent introduction of fresh foci of infection is one difficulty. Again, a regiment may be required by military exigencies to depart for the front even before the medical authorities have been able to determine whether or not healthy meningococcus carriers are present in it. It is plain that under some conditions the work of medical and sanitary control must be directed toward lessening contact infection as far as practicable rather than preventing it altogether. It is probably true that increased liability to certain infections must be looked on as an unavoidable hazard of war.

All this does not mean that any legitimate measure for preventing contact infection can be relaxed or ignored. But the situation does suggest the employment as far as possible of measures other than isolation and segregation, not to the neglect of the latter, but as a partial substitute and reinforcement for them when they cannot be completely carried out. The avoidance of overcrowding in camp and barracks is a considerable safeguard against extensive contact infection, and wherever, as in the training of recruits, suitable preparation is possible, the provision of ample space for living quarters is a matter of the most elementary prudence. Early detection of illness, even of apparently slight ailments, is an important preventive measure in which noncommissioned officers may be trained to give much help. Probably something can be effected, too, by the instruction of officers and soldiers in personal hygiene. Personal cleanliness, hand-washing before eating, the proper care of "colds" for oneself and for one's associates, the avoidance or removal of "predisposing factors," such as constipation, unnecessary exposure to extremes of cold and heat, improper habits of eating, and the like, are all measures that will lessen the spread of infection by contact. Every one knows that under conditions of actual warfare all precautions of this sort must often go by the board. It must be remembered, however, that a large amount of trouble from contact infection has been caused among troops not only in the field, but also in the training camps. There would seem to be a chance not merely to protect the men against infection from direct contact with disease carriers, but also to educate them in those procedures of personal hygiene which will render them less likely to pick up infection and to transmit infection to others, and also to impart some knowledge of the circumstances which weaken and predispose to infection Instruction of this sort may fall on stony ground, but some will take root and bear fruit Medical officers connected with the various cantonments and training camps may have opportunities for effective public health education and instruction in personal hygiene

TUBERCULOSIS OF THE LYMPH NODES

The relations of tuberculosis of the lymph glands to tuberculous processes in other organs have received much attention, but there still are differences of opinion, and careful observations are therefore of much interest Harbitz[1] has just published the results of an extensive and painstaking study of tuberculosis of the lymph nodes He says

> In general one may say that in children most of the tuberculous infections have their point of departure in tuberculosis of the lymph nodes, the tubercle bacilli are deposited here after they have passed through mucous membranes or the skin, here they proliferate enormously or remain latent but virulent for a long time, years and years, eventually escaping and infecting other organs Most frequently the dissemination occurs by the lymph vessels, but also by the blood vessels, and probably more often than now believed

The observations are based on 2,906 necropsies in Christiania, Norway, during a period of twelve years, 2,489 of persons over 15 years, and 417 of children Of the entire number, 431, or 14 8 per cent, died of tuberculosis, 351, or 14 per cent, being adults, and eighty, or 19 per cent, children In 203 cases there was considerable involvement of the lymph nodes, and on analysis Harbitz finds that there were fifty-seven cases of primary tuberculosis of the bronchial lymph nodes, with eight somewhat doubtful, ten of primary extensive tuberculosis of the cervical glands, all in adults, nine of primary tuberculosis of the abdominal lymph nodes, forty of chronic tuberculosis of the lymph glands of the neck and chest, four of primary contemporaneous old tuberculosis of the cervical and the abdominal lymph glands, twenty-two of tuberculosis of the thoracic and abdominal nodes, and sixty-one of general lymph-node tuberculosis The last group he considers the most interesting and the most important, it contained twenty-nine children, and in twenty of these the disease developed during the first three years of life, and with one exception tuberculosis caused death There was marked involvement of the lymph nodes of the neck, chest and abdomen The process is often a descending one in the neck, the swelling being most marked above and decreasing downward, whereas in the thorax it is ascending, less marked along the upper portion of the trachea and increasing toward the bifurcation and the hilum of the lung, where the enlargement is greatest A more isolated process may be observed in the abdomen which from an anatomic point of view would not suggest continuous spread along lymph channels but rather repeated infection at various points from different sources This is especially indicated when processes are present that evidently are of different age In cases of extensive tuberculosis of all the groups of lymph nodes, a continuous spread from group to group or a hematogenous dissemination may be assumed Ungermann is cited as believing that in such cases the infection is by the blood stream, usually by way of the thoracic nodes, which in turn are infected from the lung following inhalation of tubercle bacilli

According to Harbitz, in about half the cases of lymph-node tuberculosis in children, death results from pulmonary tuberculosis, in about one fourth from tuberculosis of the intestinal tract with the primary lesion in the abdominal lymph nodes presumably, and in the remaining fourth from miliary tuberculosis or tuberculous meningitis

The general lymph-node tuberculosis was found in thirty-two adults, and in thirty it was fatal It would seem that the infection may originate at different times and in different ways at the various points, especially when the process is discontinuous and of different ages in the various locations Cases of generally disseminated, apparently continuous tuberculosis of all the important groups of lymph nodes are the more numerous, and the process is usually of long standing

The condition of the nodes in the neck and the chest is much the same as in the children of this group, but in the abdomen the process is somewhat more extensive There may be enlargement of the mesenteric nodes, sometimes accompanied by intestinal ulcers, involvement of the retroperitoneal nodes, especially those behind the stomach and pancreas, and farther down there may be swelling of the nodes along the iliac vessels to the inguinal region, decreasing in size downward The infection plainly seems to have come about by a continuous extension along the lymph vessels from one of the groups of lymph nodes, a procedure easily within the limits of possibility, taking into account the generally accepted reversal of the lymph stream under pathologic conditions and the limited means of communication between the lymphatic systems of the various organs In an earlier article, Harbitz[2] maintained that this mode of extension was both frequent and important Tendello and Staub both support this view, the latter having apparently demonstrated the spread of tuberculosis along lymph vessels, particularly from the abdominal lymph nodes to the liver and spleen A plausible explanation seems to be that one or more groups of nodes become infected, and the process spreads from node to node in the infected group or groups and to the internal organs adjacent and thence to other lymph nodes and vessels In adults as well as in children it seems probable that in many cases distribution takes place by way of the blood

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[1] Harbitz, Francis Jour Infect Dis, 1917, 21, 196

[2] Harbitz, Francis Jour Infect Dis, 1905, 2, 142

That the process is not arrested may be due to the virulence of the organisms or to repeated infections together with a lowered resistance Death from tuberculosis is the usual termination of lymph-node tuberculosis and in the opinion of Harbitz most of the cases of pulmonary tuberculosis in patients with lymph node involvement are derived from infection of the lymph nodes either by direct perforation of a node into the lung or by hematogenous invasion

Whether much of the tuberculosis in adults is a result of tuberculous infection in childhood or of infection in later life is an open question Andvord Romer, Much and Hamburger support the former view According to Andvord's experience only about 20 to 30 per cent of fatal adult tuberculosis was due to primary infection whereas in from 70 to 80 per cent the infection probably began in childhood Tilisch, while satisfied from clinical experience of the dependence of a certain amount of tuberculosis in adults on infection during childhood, was disappointed by his inability to prove this on the basis of pathologic anatomy Harbitz points out, however, that from his first series of cases in 1901-1902, he estimated that from 15 to 20 per cent of all cases of pulmonary tuberculosis in adults arise from tuberculosis in other organs, particularly the lymph nodes, by way of the blood In the later report on lymph-node tuberculosis the death rate from tuberculosis was 14 8 per cent, and in 18 per cent of those dying the anatomic picture clearly indicated tuberculous infection in childhood, this, we see, corresponds well with his earlier observations That tubercle bacilli may live and retain their virulence over long periods of time has been abundantly proved, and lends support to the theory of autoinfection

This study will tend to renew interest in tuberculosis of the lymph nodes and the many unsolved problems connected therewith The results emphasize again such fundamental questions as the nature of the affinity of the tubercle bacillus for lymphatic tissue, reinfection from the outside and autoinfection of the tuberculous, the different degrees of virulence of the bacillus and of resistance on part of the host as expressed in the variable course of tuberculosis, and others But the results also have direct practical significance as they emphasize the great importance, immediate and remote, even under the most conservative view, of lymph-node tuberculosis in children, which to some extent at least may be prevented by securing for children clean food, clean surroundings, and freedom from direct contact with the tuberculous

Current Comment

REPORT ON PREMEDICAL EDUCATION

The highest desirable standard of education preliminary to medicine is two years of college work based on a four-year high school education This standard has now been generally adopted by the medical colleges of the United States Aside from the general understanding that this college work should include courses in physics, chemistry, biology and possibly a course in a modern language, no attempt has heretofore been made to outline the subject content of this two-year premedical college course Last February a special committee was selected to study the problem and to suggest the subjects which could be included in this two-year course whereby it would best prepare the student for his subsequent medical studies Besides representatives of the Council on Medical Education and the Association of American Medical Colleges, a representative was chosen by the Association of American Universities, and another member of the committee is closely identified with the work of the North Central Association of Colleges and Secondary Schools Although of great importance to medical education, this is a matter depending on the colleges of arts and sciences, and for that reason the associations of such colleges are represented on the committee, and presidents and deans of such colleges have been freely consulted in the study of the problem The preliminary report of this special committee, printed in this issue,[1] will be of special interest to those interested in medical education

OPPORTUNITIES FOR WOMEN IN LABORATORY WORK

The disarrangement of scientific and professional life that has come with the war is filling some needs as well as creating them College and university women in increasing numbers are finding opportunities for the utilization of their training in many lines other than the pedagogic This is true *especially of work in* scientific laboratories, particularly bacteriologic and public health laboratories The draft of young men into the Army and the immediate demand for experienced laboratory men in field service and Red Cross sanitation will create numerous vacancies in municipal, hospital and waterworks laboratories which can often be well filled by trained women In many respects women are peculiarly well suited for such positions as require a mastery of bacteriologic technic The accuracy and attention to detail involved in certain manipulations are often manifested by women in a high degree It seems desirable under present conditions to encourage women to enter on the training necessary to fit them for laboratory assistants and helpers There should be no slurring over of the essential preliminaries, such as the fundamental courses in chemistry, and, in giving advice to prospective students, more than ever must due regard be paid to personal aptitude The vital relation of public health and diagnostic work to the welfare of the nation is reason for insisting on a high competence and exceptional personal qualifications in all entering this field Given these, numerous opportunities for laboratory service will soon be open for the skilled woman worker Heads of university laboratories may consider whether they should not offer special encouragement to women contemplating this work The bacterial control of important water filtration plants, and the work at hospitals and at public health laboratories must not get into incompetent hands An abundant supply of well-trained laboratory women will avoid some of the difficulties before us The competent woman laboratory worker may be assured of satisfactory opportunities

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[1] See page 546

PATRIOTISM RAMPANT

At a recent meeting, the Michigan State Board of Registration in Medicine adopted the requirement of a two-year college course as the minimum standard of preliminary education for all students matriculated in the session of 1918-1919 It is stated that this course should include chemistry, physics, biology, English and a foreign language The board voted, however, that no credit be allowed for any courses in German While there can be only the highest praise for the action of the board in raising its requirements for preliminary education, its peculiar action regarding the German language, based, without doubt, wholly on the present war, is not to be commended The achievements of German scientists, of French and British scientists, of scientists of all nations, are imperishable That Robert Koch, Ehrlich and other German scientists happened to be born under the dominance of a militaristic monarchy is not to the discredit of their scientific achievements

AN IMPROVED MEDICAL PROFESSION

Following the Civil War, the number of medical schools in the United States was increased by leaps and bounds These schools were largely of the proprietary type The course at that time extended over only two years following a year with a preceptor, but that was practically all the time required to obtain a training in the medical knowledge of the time During the same period, however, the factors were developing which would eventually demand an entirely different type of medical teaching institution The discovery of bacteria resulted in definite knowledge regarding the origin, course and treatment of many of the common diseases, and greatly extended the field of medical knowledge Prior to 1900, few of the medical schools in the United States had succeeded in keeping pace with this rapid increase in medical knowledge Many institutions realized the need of improvement, but were hind red from progress not only by the lack of money but also by severe competition Without waiting for an increased financial income from state aid or private endowments, stronger institutions were established through the merger of two or more weaker institutions in each of several cities[1] The teaching of modern medicine, however, required something more than improved medical schools It required better preliminary education than was furnished by the ordinary high school course Hence the increase in admission requirements for a high school education to one year, and later two years, of college work was essential in order that the students might master the modern medical course The highest desired standard of preliminary education has been reached, and an oversupply of comparatively low grade institutions has given way to a smaller but adequate supply of high grade, thoroughly equipped medical schools Although the total number of medical students is considerably less than that of fifteen years ago, the number admitted with one or two years of college education has increased several-fold, and the proportion of well trained physicians each year has likewise been increased Moreover, the rank and file of the profession has been greatly improved by a campaign against the quack and the nostrum vender The field of medicine has, therefore, been largely cleansed of low type educational institutions and of pretenders, who have found a temporary ambush in the ranks of the drugless cults — and the responsibility for them does not rest with the medical profession

MEDICAL STUDENTS AND CONSCRIPTION

As stated last week, there were, all told, 13,764 medical students enrolled in our medical colleges for the session 1916-17 Of these, 3,379 were recently graduated, leaving 10,385 to be regarded as medical students Of these, 4,107 were freshmen, 3,117 sophomores, 2,866 juniors, and 295 seniors who were not graduated Of the 10,385 we have had replies from 6,474, up to the time of going to press Of these, 5,552 are subject to draft, 777 are exempt on account of age — 637 being under, and 140 over, the draft age, 40 are aliens, and 105 have already enlisted in some form of military service

Class	Total Replies	Total to be Drafted		First Call		Second Call		Later Call		Age Exempt		Aliens	Enlisted
		No	%	No	%	No	%	No	%	Under	Over		
Freshmen	2 176	1,708	79 4	448	26 2	307	17 9	953	55 8	375	83	17	43
Sophomores	2 071	1,817	87 7	482	26 5	366	20 1	969	53 3	170	46	13	25
Juniors	1,601	1,486	92.8	461	31 0	300	20 2	725	48 8	41	43	8	23
Seniors	218	206	94 5	82	39.8	44	21 3	80	38 8	5	5	2	
Not stated	408	335	83 0	134	40 0	55	16 4	146	43 6	46	13		14
Totals	6,774	5 552		1,607		1,072		2,873		637	140	40	105
Percentages		85 7		28 9		19 3		51.8		9.8	2 2	0 6	1 6

Of the 5,552 subject to draft, it is estimated that 1,607 (28 9 per cent) are included in the first call, 1,072 (19 3 per cent) in the second call, and 2,87 (51 8 per cent) in the third or later calls Present indications are that the estimate for the first call was entirely too low, and that instead of being 28 9 per cent it will likely be nearer 40 per cent In any event, 35 per cent, from present indications, will be none too high as a basis for estimation The returns already received indicate that of the 10 385 medical students, 8,900 would be subject to the draft, the remaining 1 485 have previously enlisted or are exempt on account of age or alien birth As will be noted age limitations come mostly among students in the lower classes, and the higher classes, therefore, are more seriously depleted

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[1] All together fifty three institutions were thus merged with others But still the number of schools was more than adequate to meet the needs of this country

MEDICAL STUDENTS AND THE SHORTAGE OF INTERNS

In January, 1915, less than six months after the war had started, the question as to the future supply of physicians in Great Britain had become so serious that as stated in our London Letter dated Jan 15, 1915, an army order was issued giving permission to any medical student who had gone to the front to return home to complete his studies One of the reasons for this action was that at that time owing to the impossibility of obtaining interns for the hospitals senior students were being employed in their places This condition developed in the hospitals of Great Britain and France at the outset of the war, and the hospitals of those countries have been handicapped in this regard ever since Already in this country the same condition is developing All of the interns in some hospitals have either already made application for positions in the Medical Reserve Corps or have been drafted Many of these hospitals were preparing themselves to fall back on the senior students, but now that these students will be no longer available, these hospitals will be most seriously handicapped In our Correspondence columns is a letter from Dr S S Goldwater, chairman of the Committee on Hospitals of the Mayor's Committee on National Defense, of New York, in which he states that Judge Hughes — former Justice of the U S Supreme Court — believes that there is no relief for the drafting of medical students except by act of Congress How thoroughly Judge Hughes investigated the question before he gave this decision we do not know In any event, if no remedy rests with the Secretary of War or with the President, the question is so vitally important that an appeal should be made to Congress And this appeal should not be made on behalf of the medical profession not on behalf of medical students, but in the direct interest of the public and of the welfare of our Army

Plethora —When blood abounds it brings health, and from it sanies is produced such as we see in incised wounds Blood becomes superabundant by reason of too much food and drink, and is corrupted by its ill concoction, and where it passes beyond its natural limits, it induces some bodily ailment, and in whatever part it settles it becomes corrupted and exhausts and injures the body Thus corrupt blood causes the mouth to burn, vitiates the breath and makes it stink. For when the blood is healthy it contains the breath [or spirit], and maintains the body so that it may support either heat or cold But when it is superabundant it produces sanies or bile, as it is called which exhausts the spirit, and this gives rise to the bad odor A substance is also produced called acid or bitter bile, which is regarded as the substance of disease, for it excites the production of heat. Phlegm produces chafing and pain in the intestine It causes distention, which inflates the body so that it seems as though it would burst —Ancient Pathology

Medical Mobilization and the War

Increase Personnel at Training Camps for Medical Reserve Officers

During the past week additional medical reserve officers have been ordered to the various training camps so that there are now 1 000 physicians or more at each of the training camps In addition some 130 colored physicians are in training with colored troops at Fort Des Moines, Iowa Of those physicians who were in the first training camp beginning June 1 some 30 per cent have been recommended for promotion to higher rank than that held at the time they reported for active duty The recommendation was based on proficiency and adaptability to the service Many physicians who reported to the camps June 1 have now been ordered elsewhere for active duty

Reporting for Duty Before Receipt of Commission

A number of men who made application for appointment to the Medical Reserve Corps have written that while they have not received their commission they have received telegrams asking them to accept and later ordering them to active duty in spite of the fact that the commission had not yet been received The explanation is as we have mentioned previously that there has been considerable delay in issuing commissions to men who have been recommended, the delay occurring chiefly in the Adjutant General s Office So as not to prevent ordering medical officers to early training, the Surgeon-General s Office has adopted the plan of telegraphing those recommended that they have been recommended and asking them whether or not they will accept If the reply is satisfactory the officer may then be ordered to active duty, the commission reaching him in due time Those who report at the training camps who have not already taken the oath of allegiance are sworn in at the camps

Minimum Equipment for Medical Reserve Officers Ordered to Active Duty

Inquiries are continually coming as to the minimum equipment which a medical reserve officer should have when reporting for active duty at a training camp The articles listed below may be considered a minimum requirement They may be purchased from the Quartermaster's Department, the prices are approximate

1	Hat service and cord	$1 04
2	Shirts o d 2 each	2 38
3	Breeches khaki o d 2, each	2 31
4	Shoes 2 pair, each	2 81
5	Blankets 2 pair, each	3 08
6	Cot, gold medal	2 06
7	Mattress	
8	Socks light wool 6 pairs, each	13
9	Leggings 1 pair	1 81 and up
10	Insignia for collar	
11	Folding chair	
12	Towel	
13	Toilet articles	
14	Pillow	

Other articles most of which are not costly, may be purchased piece by piece as needed

Army Rank for Red Cross Workers

The President has accepted the cooperation and the assistance of the American National Red Cross with the land and naval forces of the United States To facilitate the discharge of their duties, members of the Red Cross, other than units, sections and individuals accepted for service by the War Department and incorporated in the enlisted strength of the Medical Department of the Army, will be recognized by titles with assimilated rank This rank extends from Major-General down to Private To the chairman of the central committee and to the chairman of the War Council are given the rank of Major-General, members of the War Council and vice chairman of the central committee, Brigadier-General, director general, Colonel, the assistant director general and commissioner, Lieutenant-Colonel, directors, Major, and assistant director, Captain and First Lieutenant. A secretary will receive the rank of Sergeant-Major, and base hospital employees will receive the rank of Sergeant, Corporal and Private, according to the various duties which they will perform *These commissions confer no military authority or obligation, nor right to the pay or allowances of similarly described grades in the United States Army* They are merely certificates of identity indicating that the officials of assimilated rank are persons in whom the Commander-in-Chief of the Army and Navy and the American Red Cross have confidence Insignia and special uniforms to be supplied by the American National Red Cross will indicate the rank of those mentioned *The use of the military titles, rank and uniform is authorized only for American National Red Cross representatives actually in foreign countries constituting the theater of active war*

Women Physicians Organized

A committee of women physicians has been added to the General Medical Board of the Advisory Commission of the Council of National Defense Dr Rosalie Slaughter Morton of New York has been appointed chairman Plans are being formulated under which the new committee will operate The other members of the committee are Drs Caroline M Purnell, Caroline Towles, Florence N Ward, Mary Lapham, Emma B Culbertson, Cornelia C Brant and Marion Craig Potter

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New Hospital Ship

On the urgent recommendation of Surgeon-General Braisted, Washington, D C, the steamship *Havana* of the Ward Line has been acquired for service as a naval hospital ship The work of remodeling has already been commenced and the hospital ship will be able to accommodate about 300 patients It is probable that another hospital ship will be obtained later

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Higher Grade for Naval Reserve Officers

A correspondent of the *Army and Naval Journal,* in its August issue, calls attention to the apparent injustice of the rank of officers in the medical reserve in the Navy, as compared with that of the Army In the latter organization, commissions are first issued as lieutenants, but promotions to captain or major may be obtained, in the Navy, the only appointment is that of surgeon or lieutenant, junior grade.

Physicians Recommended for Commission in the Reserve Corps

During the week ending Aug 11, 1917, 914 physicians were recommended for commission in the Medical Reserve Corps, the proportion being ten majors, 102 captains and 802 lieutenants

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For Conspicuous Gallantry and Devotion to Duty

It is apparently the opinion of the public that the work of the medical officer in war is somewhat of a sinecure All he has to do, according to the common belief, is to stay in some safe place back of the firing line and acquire surgical experience It is not necessary to say that his work is not altogether a sinecure and that there is some danger connected with it As a matter of fact, the medical officer has opportunity to display courage and heroism fully equal to that of the officer of the line Each week the British journals carry announcements of honors awarded to medical officers A few of these are cited as evidence of bravery and of the type of work in which medical officers are engaged

DISTINGUISHED SERVICE ORDER

Temp Capt James Harding Barry M C., R.A M C, attached to London Regiment, for conspicuous gallantry and devotion to duty in attending to the wounded under exceptionally trying conditions Under very heavy shell fire he dug out five men who were buried and amputated two men's legs on the spot He showed utter disregard of any personal risk and his example was splendid

Major Lionel Wilfred Bond, Australian A M C, for conspicuous bravery and devotion to duty When in charge of advanced collecting and forwarding posts his total disregard of danger under a terrific hail of gas shells, H E, and shrapnel fire gained him the confidence of all ranks, and greatly assisted the evacuation of the wounded Later although wounded and partly gassed he refused to leave his post, and his bravery and devotion saved a very critical situation

Temp Capt James Henry Fletcher, M C, R A M C for conspicuous gallantry and devotion to duty He showed the utmost bravery and coolness when commanding the bearers He worked continuously under artillery and machine gun fire It was largely due to his gallant conduct that so many wounded were safely evacuated

BAR TO THE MILITARY CROSS

Temp Capt Charles Bromley Davies, M C, R A M C, for conspicuous gallantry and devotion to duty He was in command of the bearer division when evacuation was most difficult He showed great gallantry and resource in pushing forward under heavy fire and rescuing several wounded men

Temp Capt Harold Garnett Janion, M C, R A M C, attached R H A, for conspicuous gallantry and devotion to duty He was assisting to remove the pilot from a wrecked aeroplane when the spot came under heavy fire from a hostile battery Several of the bearers were wounded, but by his courage and example this officer collected fresh bearers and conveyed the wounded men to safety This task was carried out under continuous shell fire.

MILITARY CROSS

Temp Capt Henry Joseph Cotter, R A M C, attached Lincolnshire Regiment, for conspicuous bravery and devotion to duty Although wounded on the previous day, he declined to be relieved, and continued to dress wounded in the open under heavy fire going through heavy barrage to reach some men lying out in an exposed condition

Temp Capt Albert Victor Craig, R A M C, attached R F A, for conspicuous gallantry and devotion to duty Though suffering himself from the effect of gas shells, he displayed the greatest bravery and the most untiring energy in attending to the wounded under fire of heavy guns and gas shells He risked his life day and night without the slightest hesitation

Temp Lieut Cyril Duncan, R A M C, for conspicuous bravery and devotion in attending wounded close to a large ammunition dump which was on fire with splinters and shrapnel shells flying about, and later, though partially gassed, attended wounded under heavy gas shell fire

Temp Capt Charles Reginald Ralston Huxtable, R A M C, attached Lancashire Fusiliers, for conspicuous gallantry and devotion to duty He showed the utmost skill and bravery in attending to and evacuating wounded When seven of his bearers were buried by a shell he at once, despite the intense hostile bombardment, organized a party and dug them out

Capt Cyril Charles Minty, Australian A.M C, for conspicuous gallantry and devotion to duty He showed the greatest courage and fearlessness in attending wounded whilst exposed to heavy shell fire and gas fumes, and assisting to carry them to the collecting post The stretcher bearers had suffered severe casualties, and it was owing to his magnificent example that they maintained their courage and endurance

Temp Capt John Finlayson McGill Sloan, R A M C, for conspicuous gallantry and devotion to duty His dressing station being blown in on the top, he dressed over 200 cases under very difficult conditions He had to change his dressing station twice.

Temp Capt Donald Alexander Warren, R A M C, attached Royal Warwickshire Regiment (Lieutenant C A M C), for conspicuous gallantry and devotion to duty He continued to attend wounded for over an hour under heavy artillery and machine-gun fire and in full view of the enemy Later he established an aid post, and carried it on for forty eight hours without rest under continuous fire.

Orders to Officers of the Medical Corps

Major Charles Y Brownlee, M C, to Governors Island, N Y, for duty as assistant to department surgeon

First Lieut Robert E Parrish, M C., to station and duty at Fort Slocum, N Y

Sick leave two months to Major John A Murtagh, M C, Fort Sam Houston

Major Albert G Love, M C, to Washington, for duty

Major Ernest G Bingham, M C, to Fort Des Moines for duty as C O of base hospital to be established there

Officers of M C will proceed to place specified after their names for duty as C O of base hospital to be established Capt Jay D Whitham, Camp Upton, Yaphank, L I, N Y, Capt William L Sheep, Camp Travis Fort Sam Houston, Capt Omar H Quade Camp Meade, Annapolis Junction, Md, Major Ferdinand Schmitter, Camp Lee, Petersburg, Va, Capt Joseph A. Worthington Camp Taylor, Louisville, Ky, Capt Shelley U Marietta, Camp Gordon, Atlanta, Ga

Capt George B Foster, Jr, M C, to station and duty at Atlanta, Ga

Capt William B Meister, M C, on relief treatment at Letterman Hospital, to Presidio of San Francisco, for duty

First Lieuts Charles L Gandy and William W Vaughan, M C, on arrival in United States, to Allentown, Pa, for duty

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Orders to Officers of Medical Reserve Corps

ALABAMA

To Fort Oglethorpe for duty, Lieut James K Miller, Epes

To Fort Sam Houston, for duty, Lieuts Raymond B Ramage, Lafayette and Llewellyn H Ledbetter, Goodwater

ARIZONA

To Report by Telegraph to Commanding General, Southern Dept, for assignment to duty, Capt Charles H Bowker, Warren

ARKANSAS

To Fort Benjamin Harrison for instruction, Lieut. Horace F Villars, Little Rock

To Fort Oglethorpe, for duty, Lieut Victor K Allen, Hope

CALIFORNIA

To Allentown Pa, *with Ambulance Co No 2 for duty* Capt Albia Powell Berkeley

To American University, Washington with 10th Engineers for duty Lieut Alfred L Phillips San Francisco

To Letterman General Hospital Presidio of S F for duty, Capt Merton K Gibbons San Francisco

To Presidio of San Francisco for duty with Provisional Field Hospital Co A Major George L Shiels, San Francisco with Field Hospital Co No 2 Capt Culbert M Barrett Lieut William L Moore San Francisco for duty Lieut Harold W Wright San Francisco

To Report by Telegraph to Commanding General Western Department for assignment to duty Majors Harry R Oliver and Marion Week San Francisco Capts Samuel M Alter Los Angeles William L Dunn Oakland B O Adams Riverside Robin C Howe and Jule B Frankenheimer San Francisco Lieuts Charles B Alexander Alhambra Walter L Ellis Calexico Thomas S Long Carlton Louis J J Couguet Chico Wallace A Peel Covina Otis P Horeth Dixon Bernice A Mix Exeter Henry Tyler Fowler Allan N Kerr Hawthorne Roderick H Shuppey Long Beach Charle B Adams John I Boyer, Milo A Heffelfinger Clarence L McClish Los Angeles Franklin M Seibert Mayfield Henry M Fine Oakland Charles H Freeman O Anderson Ocean Park Alva D S McCoy Pasadena Arthur J Brown Riverdale Howard McD Cameron Arthur J Menger Sacramento Nathan P Barbour Hugh K Berkley Walter W Lemon Ione D Hatch Obe H Hoag San Francisco Ward C Paler San Mateo Rafael G Duffey San Rafael and L J Schermerhorn Stockton

To San Francisco for duty Major Henry S Kiersted Burlingame Lieut Francis B Dwire Carlena

Resignation of Capt Edward Von Adelung Oakland is accepted

COLORADO

To Denver enlisting personnel of Red Cross Ambulance Co No 30 Capt Thomas M Hopkins Denver

To Fort Davis Alaska Lieut H C Burson Pueblo

To San Francisco for duty Lieut Frank N Stiles Grand Junction

CONNECTICUT

To Fort Benjamin Harrison for instruction Lieut John J Carden Bridgeport

DISTRICT OF COLUMBIA

To American University Washington with 10th Engineers for duty Major James C McKay Washington

To Fort Benjamin Harrison for instruction Lieuts John M Stanley and Ernest K Stratton Washington

FLORIDA

To Allentown Pa for duty Capt Owen H Kenan Palm Beach

To Fort Benjamin Harrison for instruction Lieut Bascom H Palmer Tampa

Honorably discharged Lieut Robert E Codard Quincy

ILLINOIS

To Fort Benjamin Harrison for instruction Lieuts Frederick A Blesse John F Robinson Chicago and Edward S Murphy Dixon

To Chicago as instructor in military roentgenology Capt Edward S Blaine Chicago

To Fort Constitution, N H for duty Lieut W P MacCracken Chicago

To Fort Des Moines Iowa for duty Lieut Julian Dawson Galesburg

To Fort Riley for duty Lieut S R Johnson Divernon

To Fort Sheridan Ill. for duty Lieut Harry S Cradle Chicago with Ambulance Co No 9 Capt Stephen V Balderston Evanston and Lieut James F McNeel Chicago

To Report by Telegraph to Commanding General, Western Dept for assignment to duty Lieut Arthur Betts Chicago

So much of Par 72 S O 165 War Dept., July 18 1917 as relates to Lieut. Robert H Lowry Jr Chicago is revoked

INDIANA

To Fort Benjamin Harrison for instruction Lieuts. Arlie J Ullrich Aurora and Chester A Stayton Indianapolis.

To Fort Oglethorpe for duty Lieut Charles P Major Indianapolis

To Fort Snelling Minn for duty Lieut. Kenneth L Craft Indianapolis.

To Indianapolis for duty Lieuts Ernest D Wales Indianapolis enlisting personnel of Red Cross Ambulance Co No 18 M B Light Indianapolis

To Report by Telegraph to Commanding General, Western Department for assignment to duty Lieut Frederick Falk Indianapolis

So much of Par 161 S O 171 War D July 25 1917 as relates to Lieut. M H Krebs Huntington is revoked

Resignation of Lieut Fred E Hickson Indianapolis is accepted

IOWA

To New York City for duty Capt. James F Taylor Sioux City

To Fort Benjamin Harrison Ind Lieut Ward S Wells

KANSAS

To Fort Leavenworth for duty Lieut. John DeW Riddell, Salina

To Topeka Kan enlisting personnel of Red Cross Ambulance Co No 44 Lieut Charles H Lerrigo Topeka

KENTUCKY

To Fort Benjamin Harrison, for instruction Lieut James W Bruce Louisville

To Fort Des Moines Iowa, for duty Lieut V J Davis, Paducah

LOUISIANA

To Fort Des Moines Iowa for duty Lieut. W Wallace Shreveport

To Fort Sam Houston Texas for duty Lieut T B Bird, New Orleans.

MAINE

To Fort Des Moines, Iowa, for duty Lieut. H. White Portland.

MARYLAND

To Fort Benjamin Harrison, Lieuts Hertel P Makel and Edwin E Meyer Baltimore

MASSACHUSETTS

To Fort Adams, R I, for duty, Lieut B M Latham, Mansfield

To Allentown, Pa, for duty, Lieut Otho L Schofield, Newton Lower Falls

To Boston as instructor of military roentgenology, Major Arial W George Brookline

To Pittsfield Mass enlisting personnel of Red Cross Ambulance Co No 13 Lieut Harry J Tate, Pittsfield

So much of Par 47 S O 172 July 26, War D, as relates to Major Fred B Lund Boston is revoked

Honorably discharged, Lieut Austen F Riggs, Stockbridge

MEXICO

To Report by Telegraph to Commanding General Southern Department for assignment to duty, Lieut Charles C Cooke Vera Cruz

MICHIGAN

To Detroit enlisting personnel of Red Cross Ambulance Co, No 28 Capt Griffith A Thomas, Detroit

To Flint Mich enlisting personnel of Red Cross Ambulance Co No 21 Capts Walter H Winchester, No 42 J A Roberts Flint.

To Fort Benjamin Harrison, for course of instruction Lieut Glenn J Conn Detroit

To Fort Leavenworth for duty, Lieut Eugene Hall Reading

To Memphis Tenn enlisting personnel of Red Cross Ambulance Co No 45 Capt Walter R T Sharpe Romeo

To Report by Telegraph to Commanding General Southern Department for assignment to duty Lieut. Cullen H Hendry Detroit

To duty with Sixth Engineers N A Lieut. Glenn B Carpenter Detroit

MINNESOTA

To Fort Benjamin Harrison, for instruction, Lieut Cleon J Gentzkow Minneiska

To Little Rock for duty Lieut Frank H Clay St Charles

To Minneapolis enlisting personnel of Red Cross Ambulance Co No 17 Lieut Ralph T Knight Minneapolis.

Honorably discharged Lieut Hugh J McGaughey, Winona

MISSISSIPPI

To Fort Des Moines Iowa, for duty, Lieut B T Williamson, Greenwood

To Fort Sam Houston for duty Capt Erskine P Odeneal Gulfport Little B Neal Jackson and Albert C Lofton Williams

To Vicksburg enlisting personnel of Red Cross Ambulance Co No 38 Capt N Stewart Jackson

Honorably discharged Capt. Harry Greenberg Fayette.

MISSOURI

To Fort Des Moines, Iowa for duty, Lieut S H Warfield Louisiana

To Fort Riley Kan Lieut E T Anderson Kirbyville

To Kansas City Mo, enlisting personnel of Red Cross Ambulance Co No 24 Capt Ernest W Cavaness, Kansas City

To San Francisco in time to sail for Hawaii for duty, Capt Richard S Bryan St Louis

So much of Par 10 S O 166, War D, July 19, 1917, as relates to Capt Richard S Bryan St. Louis, is revoked

MONTANA

To Report by Telegraph to Commanding General, Western Department for assignment to duty, Lieut. Karl H Kellogg Stevensville

NEBRASKA

To Report by Telegraph to Commanding General, Western Department for assignment to duty, Lieut Bryant R. Simpson Adams

NEW JERSEY

To Butler N J enlisting personnel of Red Cross Ambulance Co No 33 Capt William H Laurence Jr Summit.

To Fort Des Moines Iowa, for duty, Lieut Clarence S Janifer, Newark

To Monmouth Park N J for duty Lieut B A. Furman Newark

To New York Transport Service for duty Lieut Peter G Fagone Hackensack

NEW MEXICO

To Report by Telegraph to Commanding General, Southern Department for assignment to duty, Lieut Dwight Allison, Gallup

NEW YORK

To Allentown Pa for duty Lieut Conde de Sales Pallen New York

To Fort Benjamin Harrison for instruction Capt Daniel W Wynkoop Babylon Lieuts Roland A Davison, Brooklyn Paul B Johnson and Richard S Moynan New York

To Fort Des Moines Iowa for duty, Lieut. Hudson Oliver Asbury Park.

To Fort Oglethorpe for duty Capt Douglas Brown New York.

To Fort Totten N Y for duty, Lieut W E Fitch New York.

To New York to duty examining N Y N G for tuberculosis and cardiovascular diseases Lieuts Thomas Ellis Geza Kremer Frank McLean, Thayer A Smith and Henry C Thacher New York.

To Eastern Department Transport Service for duty, Lieut. Renato J Azzari New York

To Report by Telegraph to Commanding General, Western Department for assignment to duty Lieut Harry H Hemstreet Brooklyn.

To Syracuse, N Y for duty, Lieut. W S Cooke Otego

To Washington, in office of Surgeon General for duty, Lieut. Hans Zinsser, New York

NORTH CAROLINA

To Fort Des Moines, Iowa, for duty, Lieut. R S Vass, Burlington

To Report by Telegraph to Commanding General, Western Department, for assignment to duty, Lieut. William H Boone, Durham

OHIO

To Fort Benjamin Harrison, for instruction, Lieuts Harold O Brown and Stanley G Odom, Cincinnati

To Fort Des Moines, Iowa, for duty, Lieut. Romeo A Johnson, Columbus

To Report by Telegraph to Commanding General, Southern Department, for assignment to duty, Lieut. James W Henry, Berlin Crossroads

OKLAHOMA

To Report by Telegraph to Commanding General, Southern Department, for assignment to duty Capt Floyd H Racer, Woodward, Lieuts Thomas F Renfrow, Billings, William R Barry, Bradley, Alexander B Montgomery, Checotah, Harman B McFarland, Cleveland, Montie C Comer, Clinton, Glenn L Harker, Elk City, Robert C McCreery, Erick, George A Nylund, Gate, Robert E Calhoun, Hallett, Samuel W Wilson, Lindsay, Charles R Ozias, Linn, James L. Patterson, Mutual, J Lewis Day, Norman, Frank M Bailey and George Hunter, Oklahoma, Carl Puckett, Pryor, Ernest E Nunnery, Quinton, Harry McQuown, Stillwater, and George H Clulow, Tulsa

OREGON

To Report by Telegraph to Commanding General, Southern Department, for assignment to duty, Lieut Harold T Allison, Heppner

To Report by Telegraph to Commanding General, Western Department, for assignment to duty, Lieuts Smith J Mann, Brandon, Ira B Bartle, North Bend, Benjamin F DeVore, Oakland, Walter E Hempstead, Oregon City, Charles Billington, Stanley B Dickinson and Richard B Dillehunt, Portland, Eugene Kester, Springfield, Carl T Bartlett, Vale, Orra E Patterson, Wendling, and Willis D Butler, Wilsonville

PENNSYLVANIA

To Allentown, for duty, Lieuts Sydney E Bateman and Robert B Grimes, Jr, Philadelphia

To American University, Washington, with Tenth Engineers for duty, Lieuts Martin G Barrett, Erie, and Walter A Blair, Norristown

To Fort Bayard, N M, A and N Hospital for duty, Lieut Sidney J Repplier, Philadelphia.

To Fort Benjamin Harrison, for instruction, Lieuts Raymond A Tomassene, Butler, Andrew J Griest, Harrisburg, and Daniel C Hankey, Pittsburgh

To Fort Des Moines, Iowa, for duty, Lieut De Haven Hickson, Coatesville

To duty with chief mustering officer, N G of Pa, for making examinations in their specialty of personnel, Lieuts Edward A Strecker and Samuel Leopold, Philadelphia

To Duty with Fifth Engineers, N A, Lieuts Henry C Flood and Paul H Walter, Pittsburgh

To Monmouth Park, N J, for duty, Lieut Douglas MacFarlan, Philadelphia

To Pittsburgh, as instructor in military roentgenology, Major George C Johnston, Pittsburgh

To Washington, for duty, Capt William H Walsh, Philadelphia

So much of Par 53, S O 162, July 14, 1917, War D, as relates to Lieut. Charles H. Haralson, Mont Alto, is revoked

Resignation of Lieut Thomas H Snowwhite, Braddock, is accepted

PORTO RICO

To Canal Zone, for duty, Lieut Antonio Mayoral, Ponce

SOUTH CAROLINA

To Fort Benjamin Harrison, for instruction, Lieut Albert B Pavy, Charleston

To duty at Greenville, S C, enlisting personnel of Red Cross Ambulance Co No 32, Capt James E Daniel, Greenville

Resignation of Capt William C P O Driscoll, Charleston, is accepted

SOUTH DAKOTA

To Fort Benjamin Harrison, for instruction, Lieut Earle D Quinnell, Sisseton

TENNESSEE

To Fort Benjamin Harrison, for instruction, Lieuts. James W McClaran, Jackson, and Henry E Fraser, Nashville

To Fort Des Moines, Iowa, for duty, Lieuts J D Carr, Knoxville, and G W Bugg Nashville.

To Report by Telegraph to Commanding General, Western Department, for assignment to duty, Lieut. William H. Daniel, McEwen

TEXAS

To Fort Benjamin Harrison, Ind, for instruction Lieuts Douglas Mebane, Robert K. Simpson and Paul H Streit, Galveston, and Frank M Moose, Weatherford

To Fort Des Moines Iowa, Lieut. A E Punche Cleburne.

To North Fort Worth enlisting personnel of Red Cross Ambulance Company No 40 Lieut W S Horn, Fort Worth

To Houston, enlisting personnel of Red Cross Ambulance Company No 36, Lieut Claude C. Cody, Houston

To Report by Telegraph to Commanding General, Southern Department, for assignment to duty, Major Thomas G Howe, Atlanta Capts Thomas C Brooks, Bay City, Newton H Bowman, Beeville, Woods W Lynch, Midland, Lieuts John P Hower W Auda Vee, Abilene, George S Murphy, Amarillo, Edgar G Mathis, Austin, George McAlpin Liddell, Axtell, Harry D Nifong, Britton, Frank T Blow, Call, C Hyder, Commerce, Emmett B Bruton, Hubbard K. Hinde, Ezra H Mathewson, John J Trible, Dallas, Herbert O Darnall, El Paso, E W Arnold, Arthur J Mynatt, Houston, Charles M Kent, Kenedy, Ernest H Hamilton, Kilgore, Robert E Hearn, Mabank, Paul J Connor, Madisonville, Frank H Shaw, Marlin, Cranz Nichols, Maxwell, Ellery McR Outlaw, Montalba, Edward E Collins, Premont, Forrest F Fowler, Round Rock, Thomas A Presely, Runge, Henry S Keller, Santo Tomas, Henry C Ricks, Sherman, Henry W Pickett, Sulphur Springs, Shelby P Roaten, Swenson, Robert I Grimes, Sylvester, and William L. Baber, Winnsboro

UTAH

To Fort Douglas, Utah, Lieut Kenneth A Crismon, Salt Lake City

To Salt Lake City, enlisting personnel of Red Cross Ambulance Company No 27, Capt. Hugh B Sprague, Salt Lake City

VERMONT

To Rutland, enlisting personnel of Red Cross Ambulance Company No 25, Lieut W Stickney, Rutland

VIRGINIA

To Fort Des Moines, Iowa, Lieut Douglas B Johnson, Petersburg

To Saint Aspah, for duty with Twelfth F A, Lieut B H Kyle Lynchburg

WASHINGTON

To Report by Telegraph to Commanding General, Western Department, for assignment to duty, Capt William H Morse, Spokane, Lieuts. Walter R Johnson, Chehalis, Ezra F Mertz, Concrete, Earle F Ristine, Coupeville, Diederich G Brunjes, Dayton, Charles W Jones, Elma, Conner O Reed, Friday Harbor, Frank H Collins, Goldendale, Hubert L Miller, McMurray, Nathaniel E Roberts, Olympia, Shirley Q Elmore, Pasco, Claire D Hopper, Richland Walter Everly and William C Kintner, Seattle, Charles M Frazee, William H Payne, Sedro Wooley, Ralph Hendricks and William M O Shea, Spokane, James S Purdy, Sultan, Frank J Delaney and Joseph P Kane, Tacoma

So much of Par 42, S O 168, July 21, 1917, War Dept, as relates to Capt Samuel E Lambert, Spokane, is revoked

WEST VIRGINIA

To Charleston, enlisting personnel of Red Cross Ambulance Company No 22, Capt Timothy L. Barber, Charleston

WISCONSIN

To Fort Riley, Ga, Lieut Judson A Palmer, Arcadia.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest, such as relate to society activities, new hospitals, education, public health, etc)

ARKANSAS

Typhoid Fever—Several cases of typhoid fever have developed at Paragould, and an investigation of the water and milk supplies of the city has been instituted

Books Donated by Medical College—Mrs W B Welch, widow of the late Dr W B Welch, Fayetteville, has donated the medical library of Dr Welch to the University of Arkansas Medical Department, Little Rock

State Medical Board Election—At the annual meeting of the state medical board, Dr Francis Taylor Isbell, Horatio, was elected president, Dr Thomas J Stout Brinkley, secretary, and Dr Edward F Ellis, Fayetteville, treasurer

Health Survey Begun—The health survey of the territory surrounding Little Rock and Argenta was commenced, July 20, when Surg Leslie Leon Lumsden and Henry Charles Yarbrough arrived from Washington, D C, to assist Senior Surg Claude C Pierce, San Francisco, U S P H S., in the sanitary work preparatory to the reception of the soldiers to be stationed there, the twelfth Army cantonment.

Personal—Dr Samuel Neely Hutchinson, Argenta, has been appointed resident physician of the American Bauxite Company at Bauxite——Dr Vernon Robins, city chemist and bacteriologist of Louisville since 1902, has accepted the position of county and city health officer at Helena——The offices of Drs John T Chears, David T Chears and David P Terry, Tillar, were destroyed by fire, July 26, with a loss of $3 000——Dr Frank Vinsonhaler, Little Rock, has been appointed director of the chapters of Arkansas for the American Red Cross

ILLINOIS

Chicago Graduate Lectures—Dr William Snow Miller, Madison, Wis, of the University of Wisconsin recently delivered a lecture on the "Architecture of the Lung" before the faculty and students of the graduate summer quarter in medicine of the University of Illinois

Sanatorium Patients Strike—Because of an alleged food grievance fifty five patients of the Chicago Winfield Tuberculosis Sanitarium left the institution August 3 with multifarious complaints regarding their treatment The authorities of the sanatorium say that the complaints are groundless

Personal—Dr Alice Barlow Brown Winnetka has received an appointment abroad and expects soon to leave for Compiegne France to work under the Chicago branch of the American Fund for French Wounded——Dr Harry A Pattison Rockford has been appointed by the National Association for the Study and Prevention of Tuberculosis a medical field secretary to organize preventive work in the cantonment camps and to follow up the men rejected for the Army on account of tuberculosis

Medical Military Announcement—The medical detachment of the Third Illinois Infantry mobilized at Rockford has the following officers Major Arthur L Lord Plano and Lieuts Pliny R Blodgett Harvard Harry H Davis Monroe Center and Fred L Scheppler Aurora Two of the sergeants Hospital Corps are sons of the late Major Carlton E Starrett who served with the regiment during the war with Spain The Adjutant General has announced the appointment of the following administrative staff for the Medical Department Lieut Col Jacob Frank Chicago Major John A Wheeler, Auburn and Major George L Lipschulch

Chicago

Should Boil Milk—Milk consumers of Chicago have been advised by the health commission to boil milk for a period of several days on account of the prevalence of anthrax in the Burlington and Hampshire districts of Kane County from which a large portion of the supply of milk for the city is received

Tuberculosis Board Appointed—Lieut Samuel M Marcus M R C, U S Army formerly a member of the staff of the Cook County Tuberculosis Sanatorium and the Municipal Sanatorium has been appointed head of the tuberculosis board for the district of Chicago The examining physicians are Drs John Ritter Ethan Allen Gray Willard W Dicker Harry G Hartt James Cole Daniel W Rogers George Gardner William R Abbott Edward Hencock B Westcott Rogers Robert Hayes and Nathaniel C Nelson The board is being assisted by the following volunteers Drs Frederick Tice Maurice L Goodkind William Edward Putz Jacob W Bolotin and George Hiram Robbins Physicians who have had special training in tuberculosis and volunteer to assist for a few hours in the examinations of the enlisted men of the new Army are requested to notify Dr Marcus by calling telephone Franklin 5510

IOWA

Personal—Drs Henry Matthey and Walter Matthey, Davenport are reported to have been indicted August 2 on charges of treason and conspiracy——Dr Frank J Murphy, Sioux City has succeeded Dr William Runyon as physician of the Woodbury County Tuberculosis Sanatorium——Dr S D Boyce Washington has been elected medical director of the Grand Army of the Republic of the State of Iowa

Hospital Items—The hospital at Denison built about ten years ago and which passed into the hands of Drs Carl E Conn and George A Hartley Battle Creek Mich and Dr August H Rosburg Denison will it is announced be sold at a referee s sale——Funds are said to be now available for the new Children s Hospital Iowa City which will be erected at a cost of $150 000——An addition to the Institution for the Blind Vinton will be erected at a cost of $20 000——Contracts for an addition to the Scott County Public Hospital, Davenport, were awarded July 19

LOUISIANA

State Board Meeting—At the meeting of the state board of health July 20 21 the vice presidency and finance committee of the board were abolished because of the ruling of the attorney-general that neither the officers nor the committee had any legal status Resolutions were adopted, praising and thanking Dr Oscar Dowling, president of the board for his work on health conditions at various government military camps and also for his research work on malaria

Personal—Dr Benjamin F Gallant, New Orleans formerly surgeon at the Charity Hospital has been secured by the Louisiana State Board of Health to make a survey of the Charity Hospital, Shreveport——Dr John Gorman Martin Lake Charles has resigned as president of the state board of medical examiners on account of his entrance into the military service——Dr Thomas Martin New Orleans has resigned as a member of the staff of the Charity Hospital, New Orleans to accept service in the Army

War on Hay-Fever—New Orleans has taken actively in hand the prevention of hay-fever, and the mayor has issued the following proclamation

> Scientific investigations having demonstrated that hay fever is due to pollen of plants the majority of which are worthless weeds the cutting of these weeds at this time will greatly reduce the amount of pollen in the air and prevent or at least relieve the sufferings of hundreds of persons in New Orleans subject to hay fever New Orleans is already prominent for its activities and achievements in matters pertaining to health and sanitation and our citizens I am sure will cheerfully and promptly cooperate with the local authorities—the Department of Public Property and the City Board of Health—as well as the American Hay Fever Prevention Association in a proper enforcement of the ordinances providing for the extermination of weeds which cause hay fever
>
> Now in order to be of material assistance in the proposed weed cutting campaign and as an endorsement of the admirable efforts being made by the American Hay Fever Prevention Association in this direction I Martin Behrman Mayor of New Orleans do hereby proclaim Friday August 10 as Public Weed Cutting Day and urge all citizens to assist in the success of a work the results of which must obviously prove so beneficial to a large percentage of our population
>
> Given under my hand and the seal of the city of New Orleans this 3rd day of August 1917 MARTIN BEHRMAN
> A true copy Mayor
> JOHN P COLEMAN Secretary to the Mayor

Six special inspectors have been placed on duty to cover the entire city and to take action against all owners of property who have failed to cut weeds and high grass The department now has about 250 employees and prisoners at work cutting weeds

MARYLAND

Infantile Paralysis—Infantile paralysis has been appearing from time to time in Allegany and Garrett counties, and during the past week two cases were discovered in Baltimore County

Correction—In THE JOURNAL, June 30 it was erroneously announced that Dr Joseph W Roberts Salisbury, had been appointed superintendent of the Maryland General Hospital, Baltimore The new appointee is Dr Joseph J Roberts, a graduate of the University of Maryland class of 1916

Personal—Govenor Harrington has appointed Dr Edward Bennett Matthews a member of the Maryland Council of Defense to fill the vacancy caused by the death of Dr William Bullock Clark Chairman Gray of the Maryland Council of Defense has appointed Dr Matthews chairman of the committee on natural resources and highways, to fill the vacancy caused by the death of Dr Clark——The War Department has announced the assignment of three contract surgeons of the United States Army to active duty under orders to report in person to the chief mustering officer of the National Guard at Baltimore to ascertain whether any of its members have tuberculosis The surgeons so assigned are Wilbur Pledge Stubbs John A Leutscher and Harry D McCarthy——Dr Clement A Penrose Baltimore chairman of the Food Economy Commission addressed a meeting of the Rotary Club during a luncheon at the Hotel Rennert in which he traced the work and stated that there would be no doubt that the commission would be of the greatest aid in helping the government to prosecute the war to the limit Dr Penrose s trip to England in the interest of his work made his talk particularly interesting——At a recent meeting of the Baltimore Committee of the Women s Homeopathic Base Hospital recently held at the Hotel Emerson, Dr Marie Letetia Ingram read an address on the work which women physicians are doing in the war——Dr Alexander D McConachie Baltimore was operated on for appendicitis August 1 and is reported to be doing well——Dr C Frank Jones has been appointed assistant health commissioner of Baltimore and acting head of the division of communicable diseases

MICHIGAN

Board Appointments—The governor has reappointed George Barnes Howell, and Dr Henry J Hartz Detroit, members of the board of trustees of the state tuberculosis sanatorium, Howell——Dr Edward A Ward Saginaw, has been appointed to succeed Dr Bruce L Hayden, Saginaw, as a member of the board of osteopaths registration and examination

Upper Peninsula Physicians Meet.—The annual meeting of the Upper Peninsula Medical Society was held in Escanaba, August 1-3, under the presidency of Dr Robert Bennie, Saulte Ste Marie The following officers were elected president, Dr Harry W Long, Escanaba, vice presidents, Drs Henry T Sethney, Menominee, and Richard Burke, Diorite. The next meeting will be held in Menominee

MINNESOTA

Teaching Fellowships—The Graduate School in Medicine of the University of Minnesota offers teaching fellowships in medicine, surgery, obstetrics, pediatrics, nervous and mental diseases and ophthalmology and otolaryngology These fellowships are to cover courses of three years' duration, with a service of eleven months in each year, under stipends of $500, $750 and $1,000 On satisfactory completion of these fellowships, the degree of Doctor of Science or Doctor of Philosophy, qualified by the specialty selected, is conferred by the university Application blanks for these fellowships may be secured on request to the dean of the Graduate School, University of Minnesota, Minneapolis

MISSOURI

Personal.—Lieut George W Belshe, M R C, U S Army, Trenton, while in camp at Fort Riley, Kan, August 7, was struck by lightning and severely injured——Dr Jabez N Jackson, Kansas City, has been appointed a member of the general medical advisory board of the Army——Dr William H Coon, public health commissioner of Massachusetts for ten years past and recently made health director of Kansas City, has entered on his duties, succeeding Dr Herman E Pearse, resigned——Dr William L Whittington has severed his connection with the State Hospital for the Insane, St Joseph——Dr Herbert Breyfogle has been certified by the civil service board of Kansas City as physician for the fire department.

NEW YORK

Examination of Aviators—At a special meeting of the Medical Society of the County of Erie, held at Buffalo Medical College, July 30, Major Isaac Jones, M R C, U S Army, explained the details of the examination of aviators, illustrated by motion pictures and demonstrations It is proposed to establish an aviation examination unit in Buffalo

Personal.—Dr Albert Warren Ferris, Saratoga Springs, medical expert and superintending director for the New York State Reservation Commission, has resigned as chairman of the Saratoga County Home Defense Committee, and has returned to his former position as senior medical officer at Glen Springs——Dr Walter S Goodale, Buffalo, has been appointed superintendent of city hospitals and dispensaries

Sanatorium Notes—Proposals have been received by the building and supply committee of the board of supervisors of Rensselaer County for the proposed county tuberculosis sanatorium——The Buffalo Association for the Relief and Control of Tuberculosis is now located in its new building on Swan Street.——The tuberculosis dispensary is also conducted at this address About 135 patients are examined each month at the dispensary The association has also a summer camp with accommodations for about eighty patients

New York City

New Knickerbocker Hospital—Plans have been filed for a new building for the Knickerbocker Hospital, which will occupy the entire block fronting on the west side of Convent Avenue between One Hundred and Thirtieth and One Hundred and Thirty-First streets The estimated cost of the new structure is $350,000 The main building will be six stories high Two floors will be devoted to private wards containing about 200 rooms, and the general ward rooms will provide for about 200 additional patients The Knickerbocker Hospital was formerly known as the J Hood Wright Hospital

Millions Available for Hospital—By an agreement between the executors of the estate of the late James Buchanan Brady and his heirs, the major part of his fortune, estimated at $3,000,000, becomes immediately available for the New York Hospital This agreement enables the trustees and executors to carry out the testator's plans for the establishment of the James Buchanan Brady Foundation of Urology Eventually a building will be erected for the foundation to cost about half a million dollars, which will include departments for investigation along chemical, bacteriologic and pathologic lines The plans for the foundation are in the hands of Dr Oswald S Lowsley, who was named by Mr Brady as director

Will Appeal Decision Regarding "Formula Disclosure Ordinance"—The recent decision of the appellate division of the supreme court declaring invalid the ordinance of the sanitary code requiring manufacturers of "patent medicines" to file the formula of their preparation with the department of health is regarded by the department as a demonstration of the enormous power wielded by "patent medicine" interests, and will be appealed It is pointed out that the courts have upheld other sections of the sanitary code, and that there is no question of the validity of this section Pending the final decision on the section in question, the department will continue its war on "patent medicine" fakers under other sections of the sanitary code

Nutrition Clinics—As the result of a cooperative investigation carried on by the Bureau of Child Hygiene of the department of health and the New York Association for Improving the Condition of the Poor, five clinics devoted to the care of cases of defective nutrition have been established in this city These clinics are intended mainly for the treatment and supervision of the large number of schoolchildren who show marked evidence of defective nutrition. A large part of the work will be educational in character, and instruction of the mothers in the proper feeding of the family will play an important role These five clinics are as follows Bellevue, under the direction of Dr Charles Hendee Smith, Bowling Green, 98 Washington Street, under Dr John L Kantor, Cornell, under Dr May G Wilson, Post-Graduate, under Dr Morris Stark, Brooklyn Association for Improving the Condition of the Poor, under Dr Oswald Joerg

The Feeding of Children from 2 to 7 Years Old—The health department, observing that the many leaflets on the subject of dietetics now being published give very little attention to an important group in the community, namely, children between the ages of 2 and 7 years, requested four members of the department's advisory council, Drs Luther Emmett Holt, Graham Lusk, Linnaeus E La Fetra and Godfrey R Pisek, to meet this need As a result of their work, an authoritative statement on this subject has been published in the *Weekly Bulletin of the Department of Health,* July 28 The leaflet is designed chiefly for the use of visiting nurses, social service workers and others who come into contact with those most in need of instruction in food economics It gives the amount of food required, the proportion of the various food elements, the cost of various articles of diet per calorie, some points on cooking, and sample diets for children from 2 to 4 and from 5 to 7 years of age

NORTH DAKOTA

Personal—Dr Arley J Ostrander has been appointed junior surgeon for the Minneapolis, St Paul and Saulte Ste Marie Railway at Enderlin——Dr Ellis S Swarthout, Lisbon, has been commissioned first lieutenant in the medical corps, North Dakota National Guard

Honor to Military-Medical Men—The medical fraternity of Minot tendered a banquet, at the Leland Hotel, July 27, to Lieuts Alexander J McCannel, and Johnston C Jackman, and Major Frank E Wheelon, M C, North Dakota National Guard, who have been assigned to the Second Infantry

OHIO

Akron Opens Municipal Dispensary—The Municipal Dispensary, Akron, was opened, August 6, in the Organized Charities Building Dr Fred Read is in temporary charge of the institution——A municipal tuberculosis clinic will be opened this month, and a municipal nursing bureau is established

Building for Doctors and Dentists—The Physicians and Dentists' Building Company was incorporated recently for the purpose of erecting a sixteen-story building, fourteen stories of which will be devoted to offices for physicians and dentists The other two floors will contain clinic rooms and assembly hall and club rooms

New Health Council—A law abolishing the state board of health and creating a state department of health became effective The new state council of health is composed of Mr R M Calfee, an attorney of Cleveland, Drs George D Lummis, Middletown, and Charles O Probst, Columbus, and Dr W J Jones, a dentist of Columbus Dr Lummis has been designated as chairman of the board, which held its first meeting in the governor's office, August 3

Examiners for Aviators Appointed—Dr Christian R Holmes Cincinnati has been appointed director of the local medical examining board for the Aviation Corps The outdoor clinic of the Cincinnati General Hospital will be utilized for examinations Dr Holmes will be assisted by the following staff Samuel Iglauer Walter L Murphy, Charles C Jones Horace F Tangeman, Edward King Robert Sattler Victor Ray Derrick Tilton Vail Fred W Vail Wylie McLean Ayres Mark A Brown A C Bachmeyer Oscar Berghausen E A Wagner A L Osmond Julian Benjamin and Herman H Hoppe

Personal—Dr Henry Baldwin Venn has resigned as superintendent of the district tuberculosis hospital Springfield——Dr John Darby Cleveland has been appointed assistant lieutenant to Col Joseph A Hall chief surgeon M C Ohio N G It is expected that Dr Darby will be assigned to duty as chief sanitary officer——Dr David L Rouse has been appointed chief sanitary officer of the sanitation district about Camp Sherman the Chillicothe cantonment——Dr Don Hughes Findlay has been reelected Medical State Director of the Modern Woodmen of America——Dr J H Caldwell Vinton has been appointed physician at the Boys *Industrial School Lancaster* succeeding Dr J W Clouse resigned——Dr Howell P Vail Scio was shot and seriously wounded by an insane man at Scio July 26——Charges of blackmail filed against Dr George H Matson Columbus secretary of the state medical board were proved unfounded after the trial held July 25 The charge against Dr Matson was based on his activities in prosecuting charges against a Cleveland man who was indicted for the illegal practice of medicine last May——Dr John James McShane head of the health board of Akron has resigned to accept a position with the Illinois State Board of Health——Dr Courtney P Grover surgeon at the National Military Home Dayton has resigned to accept a position as surgeon at the Wilbur Wright aviation field——Capt Earle W Cliffe M C Ohio N G Youngstown has been assigned to duty with the Tenth Ohio Infantry

PENNSYLVANIA

Homeopaths Offer Services—At the annual meeting of the state homeopathic society held at the Bellevue Stratford August 8 fifteen physicians offered their services to the Medical Reserve Corps of the Army

Organize Medical Club—The Thompson Medical Club was organized at Franklin July 30 at a dinner given to Drs Ardus C Thompson and Edgar A Thompson M R C U S Army Dr Louis E McBride was elected chairman Dr Alexander M Brown secretary and Dr Harry F McDowell, treasurer

No Fear of Smallpox at Camp—Although the wife of Lieutenant McCollough has been stricken with smallpox no apprehension is felt by officers of the Army Ambulance Corps concentration camp All the recruits were vaccinated shortly after they reached camp and Mrs McCollough never visited the camp

Ambulance Troopers Examined—August 6 work was begun by a War Department board of five physicians examining all the soldiers of the United States Ambulance Camp at Allentown The board consists of Drs Rae S Dorsett head surgeon Albert E *Blackburn John R Robrecht, Louis Jurist* and William S Wray all of Philadelphia

Personal.—Dr Edward L Davis Berwick recently underwent operation in the Berwick Hospital——Dr Evan W Evans, Easton is reported to be critically ill in Lankenau Hospital, Philadelphia——Dr Francis M B Schramm Johnstown city bacteriologist who has been ill with pneumonia has resumed his duties with the city health department——The salary of Dr Richard G Burns Pittsburgh acting director of the Pittsburgh Department of Health, has been increased to $7 000——Dr Charles F Furnee Harrisburg has been commissioned captain in the Medical Corps, Pa. N G., and assigned to the Sixteenth Infantry

Philadelphia

Veterinarians to Aid Army—C J Marshall, Philadelphia, state veterinarian and Louis A Klein, dean of the School of Veterinary Medicine at the University of Pennsylvania have been appointed members of an advisory board by Surg-Gen William C. Gorgas, Washington, D C

Decrease in Whooping Cough Epidemic—The report of the health bureau for the week ending August 11 shows 152 cases of whooping cough as compared with 236 for the preceding week. Dr Andrew A Cairns, chief medical inspector, believes the cause of the spread of the disease is the failure of physicians to report cases of the disease

Red Cross Hospital—August 7, work of demolition of the Medico Chirurgical College was begun Four buildings of this institution, including a part of the hospital, will be razed but the main portion of the latter will be reserved during the war where the American Red Cross will establish the first general Red Cross hospital in this country It will be known as Red Cross General Hospital No 1, and $20 000 has been appropriated for the current expenses The building will be altered and reconstructed, and will contain 250 beds

Baby Saving Station to Be Built—A baby health center and dispensary is to be established at Seventh and DeLancey Place by the Babies Hospital Light dwellings on the east side of Seventh Street have been purchased as a site for a large four story 'aerolite' building and yard that will involve an expenditure of almost $100,000 According to plans for the new building it will be the most modern and best equipped center in the country There will be a roof garden where mothers may take their babies on hot summer nights, rooms for daily clinics for sick babies for prenatal clinics, for prophylatic clinics lecture hall and laboratories Home *supply and social service departments will be important* branches of the work The home supply department will provide bed clothing cribs and everything pertaining to baby comfort to the poorer people of the congested districts of the city

Personal—Capt Milton H Fussell First Lieut David Riesman and Lieut Augustus A Eshner have been ordered to Gettysburg to examine men for tuberculosis The three physicians later will work in the Army cantonments to prevent tuberculosis from developing among officers or men——Dr Alexander C Abbott member of the local board of health, and professor of hygiene at the University of Pennsylvania Medical School has been commissioned a captain in the Medical Reserve Corps and will examine all the new cantonments for the Army to insure perfect sanitation——Dr John D McLean has been appointed to succeed Dr Abbott on the bureau of health——Major William F Manges chief roentgenologist of the Jefferson Medical College is conducting a school for the instruction of members of the Medical Reserve Corps in Roentgen-ray work The school is held in the basement of the Jefferson Hospital and six physicians are in the first class——Dr John Rouse, Fox Chase, was severely injured in an automobile accident near Jenkintown August 7——Dr Asa F Copeland has been appointed by the mayor as outdoor physician of the Bureau of Charities with a salary of $540——Dr Theodore H Weisenburg has been appointed to the National Committee on Mental Hygiene

CANADA

Hospital News—A new Canadian military hospital has been opened at Liverpool, England It receives soldiers whom the medical board has slated for 'further treatment in Canada ' Troops fresh from Canada, who fall sick will also be detained in that institution Lieut.-Col J L Biggar is the commanding officer He went to England with the Thirteenth Field Ambulance from Victoria, B C——Capt. A W Wakefield, C A M C who was on board a hospital ship which ran ashore near Halifax, N C, recently, has arrived in Montreal Captain Wakefield went overseas with the Newfoundland Medical Corps at the beginning of the war, but was soon transferred to the Royal Army Medical Corps

Personal—Dr A S Moorhead F R C S Toronto, has sailed for France, having accepted an appointment in the Royal Army Medical Corps in the surgical department of one of the casualty hospitals under Dr Herbert A Bruce——Surg-Gen George S Ryerson Toronto, is spending the summer at Tadousac, Que.——Lieut-Col E B Hardy, Toronto O C Toronto Military Base Hospital has been elected president of the Toronto branch of the Great War Veterans' Association of Canada——Lieut.-Col D W McPherson, Toronto officer commanding the Ontario Military Hospital Orpington, England has been created a C M G——Capt Andrew Macphail, Montreal, editor of the *Journal of the Canadian Medical Association* and the *University Magazine* is the second Canadian physician ever honored with an invitation to address the Cavendish Society, Sir William Osler having been the other——Surg Major Napier Keefer, M D, *Toronto (retired)*, has sent to King George a gift of $47 500 which is to be distributed as follows Star and Garter Home for Paralyzed Soldiers, $10,000, Nurse Cavell Homes $10 000, Auxiliary Officers Consumption Hospital, $5,000, Prisoners of War Fund, $2,500, orthopedic treatment,

$10,000, treatment of deaf soldiers, $10,000——Capt. Frank Muir Walker, M B, University of Toronto, 1913, has been awarded the Military Cross for gallantry and devotion to duty under heavy fire He went through a heavy barrage to some wounded men and tended them in the open for an hour His home is in Stoney Creek, Ont——Major Harold Parsons, M D, Toronto, who has been with the University of Toronto Base Hospital at Saloniki since October, 1915, reached London, England, July 1——Dr Ingersoll Olmstead, Hamilton, Ont., is spending the summer in Cape Breton, N S

GENERAL

Personal—Dr Thomas W Huntington, San Francisco, has been appointed a member of the committee to go to Italy and advise with the military authorities on Red Cross matters ——Dr Wilfred T Grenfell of Labrador has been spending a few days in London after three months in hospitals on the western front.

Next Examination of National Board—The third examination of the National Board of Medical Examiners will be held in Chicago, Oct 10-18, 1917 It is contemplated that another examination will be held in New York in the early part of December The secretary of the board is Dr John S Rodman, 2106 Walnut Street, Philadelphia

Tri-State Society Meeting—The annual meeting of the Tri-State District Medical Society of Illinois, Iowa and Missouri will be held at Dubuque, Iowa, September 4-6 The headquarters are to be at the Hotel Julian At the annual meeting, held on the third evening, Dr Arthur D Bevan, Chicago, will preside as toastmaster, and the governors of the three states, the presidents of the three medical societies, and the president of the American Medical Association are expected to be present.

Society of Military Surgeons—It is planned by the executive council of the Association of Military Surgeons of the United States to hold a meeting, October 8, at Indianapolis The meeting of the society, which was to have been held in Chicago last year, was called off because of the absence of many of the members on the Mexican frontier It is problematical whether a large proportion of the membership of the society will be able to be present at Indianapolis on account of existing war conditions

Bequests and Donations—The following bequests and donations have recently been announced

German Hospital, Philadelphia, $20,000 Philadelphia Polyclinic and College for Graduates in Medicine, and Philadelphia Lying In Charity, each $10,000, by the will of William B Baltz, Devon Pa

Episcopal Hospital, Philadelphia, $5,000, Samaritan and Children's hospitals, and Philadelphia Home for Incurables, each $1,000, by the will of Harriet Shaw

St. Mary's Free Hospital and the Sea Breeze Association for Improving the Condition of the Poor, New York, Morristown (N J) Memorial Hospital, and All Souls' Hospital, each $10,000, by the will of Annie A Peckham

PARIS LETTER

Paris, July 26, 1917

The War

KIDNEY WOUNDS CAUSED BY WAR PROJECTILES

Dr Barnsby has reported to the Societe de chirurgie de Paris five cases of isolated wounds of the kidney that he has encountered, purposely leaving out of account the renal lesions that are a frequent complication of penetrating wounds of the abdomen Primary hematuria may be divided into two classes (1) either the hematuria is slight and the general health good, in which case one should postpone operation, since a cure is usually effected spontaneously, or (2) the hematuria is abundant and the general condition grave, in which case operation should be resorted to Nephrectomy is not indicated except in cases of rupture of the kidney, which makes conservation impossible Partial lesions of the parenchyma, whether of the convex border or of the inferior pole (provided the section is not complete), should cause the surgeon to reconsider and to adopt conservation When there are repeated hematurias we usually have to deal with a projectile which has become embedded in the parenchyma The methods of localization (*reperage*)—which have been so perfected in our day—should lead to the removal of the projectile and to conservation of that organ The method of choice is without doubt the extraction under intermittent roentgenoscopic control, which permits the exteriorization of the kidney, a conservative incision, removal of the projectile and a diminution of the traumatism The use of calipers since they do not permit exteriorization, makes the operation laborious When there is a primary dribbling of the urine or a traumatic urinary fistula, it is evidently a serious case which points to a lesion of the renal pelvis, or the calices majores Sometimes there are cases in which nephrectomy is unavoidable, but one should not reach this conclusion hastily If the surgeon has lost no precious time, he can incise and drain, curet cautiously, cauterize several times, and refrain from interfering radically until all attempts at conservation have failed In these conservative operations one must learn to act with caution Any exteriorization of the kidney which should prove laborious, in cases of this kind, would be almost sure to lead the surgeon to a total excision Barnsby concludes his report by saying that one can carry conservation very far when it is a question of isolated kidney wounds

STATUS OF MEDICAL STUDENTS

According to a recent decree, medical students not matriculated in the Ecole principale du Service de Sante de la marine de Bordeaux who, at the time of mobilization, had twelve credits toward their doctor's degree may be appointed to the rank of medecin auxiliaire de 2-e classe (physician's assistant) after the completion of at least one year of service in the capacity of medecin auxiliaire de 3-e classe of the navy

AMERICAN AND FRENCH RED CROSS

The Central Committee of the French Red Cross, wishing to welcome the American Red Cross, invited its representatives to a friendly gathering which was held at the headquarters of the Societe de secours aux blessés militaires Among the invited guests were the American ambassador, Mr Sharp, and wife, and Major Murphy, the American Red Cross commissioner for Europe, together with the officers of his staff, who were received by the delegates of the three societies of which the French Red Cross is composed Admiral Touchard was the spokesman of the Central Committee of the Red Cross, and in its name gave expression to the gratitude of France to the United States Mr Sharp replied to this address, saying that the American Red Cross felt itself deeply indebted to its French co-workers for the warm welcome that had been accorded to it.

THE AMERICAN AMBULANCE CORPS AT NEUILLY

The closing ceremonies of the American ambulance corps took place recently at the lycée Pasteur at Neuilly, and was presided over by Justin Godart, undersecretary of state for the military medical service Among the distinguished guests were Mr Sharp, the American ambassador, Mr Benet, president of the administrative council of the ambulance, Dr Winchester du Bouchet, chief surgeon, Major Peed, Medical Inspectors Lannes and Sieur, and others Mr Benet, in turning over the American hospital at Neuilly to the government of the United States, said that this occasion, after three years' effort, would bring sadness to the founders if this cession did not mark the entrance of the great American republic into the conflict M Justin Godart warmly thanked the friends of France for their devotion

A few days before these closing ceremonies were held, General Pershing, commander-in-chief of the American expeditionary force, took occasion to visit the American ambulance at Neuilly He was conducted through the hospital by the chief surgeon, Dr du Bouchet, and inspected the different services the operating rooms, the laundry, the pharmacy, the kitchens, the apartments reserved for wounded officers, those set apart for the soldiers, and lastly, the rooms for mechanotherapy On leaving the hospital, General Pershing warmly congratulated Dr du Bouchet on the perfect condition in which the hospital was kept

FRANCO-AMERICAN CELEBRATION

A brilliant Franco-American celebration organized for the benefit of the Society for the Protection of Invalid Soldiers took place recently at the Trocadero in the presence of Mr Sharp, American ambassador, General Pershing, M Viviani, minister of justice, M Painleve, minister of war, and others

SPANISH MEDICAL MISSION VISITS FRANCE

A very important medical mission accredited by the Spanish minister of foreign affairs arrived at Paris recently The mission intends to leave shortly for a visit to the hospitals on the French front and later to those on the British front The chairman of this mission is Dr Martinez Vargas, professor at the Facultad de medicina de Barcelona, and among the members of the party are Dr Raventos, delegate of the Academia de medicina de Barcelona, Dr Turo, physician of the "dispensaire français" of Barcelona, Professor Peyri, Agrece Professors Vallori and Morales Professors Pirmat and Nogueras of the Facultad de medicina de Salamanca, and a great number of physicians of Majorca Bilboa Barcelona and Salamanca

This Spanish mission was received by a number of distinguished scientists among whom we may mention Professors d Arsonval and Moureu of the Academie des Sciences and of the Academie de medecine, Professors Robin and Gilbert of the Academie de medecine E Perrier director of the Museum member of the Academie des sciences, and others

ALIMENTARY HYGIENE

The minister of food control has received a delegation of the Societe scientifique d hygiene which consisted of Professors Richet Gley and others The delegation called the attention of the minister to the fact that the scientific principles on which the process of nutrition in man is based should be at the basis of the questions pertaining to food control This delegation also informed the minister that the Societe scientifique d hygiene alimentaire was at his disposal as regards information of a scientific nature to be furnished the administrators charged with the study of food questions and with the introduction of food restrictions If there were any measures to be adopted for which it would be well to prepare the public in advance the society would always be ready to lend its aid in the form of lectures or publications explaining the situation in simple language

Personal

Dr Moureu member of the Academie des sciences and professor at the Ecole superieure de pharmacie de Paris has been appointed professor of organic chemistry at the College de France.

LONDON LETTER

London, July 31 1917

The War

THE HEALTH OF MUNITION WORKERS

An important report to the government Committee on the Health of Munition Workers has just been published Dr H M Vernon has conducted an elaborate investigation for the committee, the members of which realize that the data at their disposal are not yet ample enough to permit them to express a final judgment on the whole question of hours of labor in relation to output on the one hand and the well-being of the employes on the other But they are strongly of opinion that the evidence collected by Dr Vernon and his conclusions merit the immediate and earnest consideration of all concerned in industrial organization at the present time (*a*) Observations extending over a period of thirteen and one half months on the output of workers employed in making fuses showed that a reduction of working hours was associated with an increase of production both relative and absolute. The rate of production changed gradually and did not reach an equilibrium value before the expiration of four months Thereafter it remained steady during the period of from three and one-half to five months during which it was observed The gradual change negatives the suggestion that the effect was a mere consequence of the desire to earn the same weekly wage as before the hours were shortened (*b*) Owing to the reduction of the working time first by a change from a twelve hour day to a ten hour day, and subsequently by the abolition of Sunday labor it was possible to compare output under three conditions The group of women (numbering from eighty to one hundred) engaged in the moderately heavy labor of turning aluminum fuse bodies provided the following comparative results (1) When actually working 66 hours a week and nominally 74.8 hours their relative hourly production was 100 and their relative gross production 100 (2) When actually working 54.8 hours and nominally working from 58.5 to 66 hours their hourly production was 134 and their gross production 111 (3) When actually working 45.6 hours and nominally working from 49.5 to 58.5 hours their hourly production was 158 and their gross production 109 It is to be inferred, therefore, that had these women been working uniformly, a nominal 50 hour week their gross output would have been as large as when they were working a nominal 66 hour week, and considerably greater than when they were working a 77 hour week. In other words, a considerable addition to the leisure time of the operatives would have substantially improved the total output of the factory (*c*) A group of forty women engaged in the light labor of milling a screw thread on the fuse bodies improved their gross output by 2 per cent when actually working 54.8 hours a week, the standard being their gross output when working 64.9 hours per week A further reduction of actual working hours to 48.1 resulted in such an improvement of hourly output that the gross output was 1 per cent less than when the actual working time was 16.8 hours more (*d*) A group of fifty-six men engaged in the heavy labor of sizing the fuse bodies improved their hourly output by 37 per cent and their gross output by 21 per cent when actually working 51.2 hours the standards being the hourly and gross outputs observed when the actual weekly hours were 58.2 (*e*) Fifteen youths engaged in the light labor of boring top caps by means of automatic machines produced only 3 per cent less output when their actual weekly hours of work were 54.5 hours than when they were 72.5 hours (*f*) A part of the improvement in output was due to the workers starting work more promptly when on shorter hours At one period the women engaged in turning fuse bodies lost on the average thirty-seven minutes daily by starting work after and stopping before the nominal time Nine months later when their hourly output was 25 per cent better they lost only twenty-six and one half minutes daily in these ways (*g*) A rest from work on Sunday is followed by a relatively low output on Monday and this output steadily rises in the course of the week owing to the increased efficiency produced by practice Generally, the cumulative effects of fatigue neutralize and overpower this increased efficiency and the output may fall after the second day (or night) of the working week if the hours are long and the work laborious or not till after the third fourth or even fifth day if the hours are shorter In the absence of a Sunday rest the fatigued worker has no opportunity for complete recuperation and his output though more uniform, remains permanently at a lower level than that shown on Monday by a worker who has rested on Sunday

THE UNITED STATES MEDICAL STAFF ON THE BRITISH FRONT

The impression made by the American physicians nurses and orderlies who arrived on the British front in advance of their fighting men and took over six large base hospitals is thus described by Mr Philip Gibbs the war correspondent of the *Daily Telegraph* The American intonation is a new note on the western front where the voices of many races mingle It brings a new type of manhood on to this stage of war and one feels instantly the freshness and the vigor of it They are quiet businesslike alert fellows these young college men and other volunteers who have come out as orderlies and stretcherbearers and staff clerks with the American Medical Corps The members of the administrative and professional staffs, surgeons and physicians from great American hospitals have settled down to this work of taking over British hospitals—not an easy task when wounded are coming in all the time—with an orderly method a complete absence of fuss and red tape which shows the quality of their character, direct quick in the grasp of principles and details, getting down to the job in hand without unnecessary words or worry So it seemed to me Some of these men have seen service in the Philippines All of them have had long experience in American hospitals, where the wreckage of human life in peace has trained them for the greater wreckage of war All of these have a look in their eyes as though conscious of the enormous tragedy into which they have come, and of the greatness of the task they have undertaken, yet bright and cheerful, and sure of themselves"

MEDICAL JOURNALS AND THE WAR

It is nearly three years since we entered the greatest of the world s wars, during which we have had to create an army adequate for the occasion which meant summoning the whole of the young men of the country Needless to say our national life has been greatly modified, but the remarkable fact is that the change has not been greater This fact is exemplified by our medical journals The price of paper is now four times what it was before the war Advertising is greatly reduced Subscription lists necessarily diminish, for not only is there what may be called the normal death rate of subscribers, but nearly half the profession is at the front and therefore less likely to subscribe Even the physicians killed in action form an item But so far only one medical journal has ceased publication The others are diminished in size to about one half Thus the half-yearly volume of the *Lancet* is now about 1 000 pages, while before the war it was 1 800 In some cases the form of publication has been altered Thus, the *Clinical Journal* is published monthly instead of weekly, and the *British Journal of Children s Diseases* quarterly instead of monthly The causes of reduction of size are several Not only is paper much more expensive, but printing, engraving and all other costs have increased Moreover, the withdrawal of such a large proportion of the medical profession from civil practice has caused those who remain to be exceedingly busy, with little time for writing In spite of the great flow of "war" articles, the total output is diminished

FOOD CONTROL

Lord Rhondda, the food controller, is introducing an elaborate system to prevent as far as possible increase in the cost of food While the cost of food has on an average rather more than doubled, the cost of living to the wage earner has increased by over 75 per cent In some cases wages have advanced sufficiently to cover the increased cost of living, while in others there has been only comparatively small advance and in some cases none at all By the exercise of a little self-sacrifice and the avoidance of waste on the part of the community generally, it is possible both to maintain adequate supplies of food and to reduce substantially the price of the chief necessaries of life The submarine menace has so far led to little deprivation on our part, but the effect of the loss of tonnage is cumulative, and until the shipbuilding program of the Allies results in replacing vessels as rapidly as they are sunk, we shall not be out of danger The government policy is to fix the prices of those articles of prime necessity over the supply of which it can obtain effective control at all stages, from the producer down to the retailer Such prices will, as far as possible, be fixed on the principle of allowing a reasonable prewar profit for those engaged in the production and distribution of the particular commodity Every effort will be made to prevent speculation, and unnecessary middlemen will be eliminated Existing agencies will be utilized for the purposes of distribution under license and control, and under the supervision of a local food controller to be appointed by the local authorities Bread is by far the most important food to be dealt with The 4 pound loaf now costs 24 cents The government proposes to reduce the price to 18 cents, which will go far to ease the situation in many thousands of poor homes It purposes to attain this end by taking over all the flour mills of any importance, as many have been taken over already From the mills flour will be sold to the bakers at a uniform price calculated to correspond with the price of 18 cents for a quartern loaf Bakers obtaining flour at that price will be expected to sell the loaf over the counter at a maximum price of 18 cents, but they will be allowed to make an additional charge for delivery and in cases in which they give credit They will be allowed to charge more for cash counter sales only if they prove to the satisfaction of the ministry or local authorities that they have had specially high working costs The amount realized by the millers from the bakers for flour at the uniform price will be met by the subsidy from the exchequer The amount of that subsidy cannot be definitely estimated because the price which will have to be paid for imported wheat is still uncertain Those in other parts of the world who are not under the control of the Ministry of Food will have the highest price they can exact from the various competitors for the food which they provide, and the British government cannot afford to risk the loss of any essential article of food by refusing to pay whatever price will be necessary in order to secure it. How the government will cheapen the article when it has secured it is a question of ways and means, and the government's intention is to take the short cut by establishing the price by law, reducing the price to the poor, and making up the difference from the exchequer

The fixing of the price of meat has presented special difficulties owing to the unprecendented rise in the cost of storage during the last few months Steps are being taken to determine what margin between the price of cattle and the price of beef will yield a dealer or butcher a fair profit Great attention has been paid to developing national economy in food consumption An important step will be the establishment, when local circumstances suggest that they are required, of central or communal kitchens They will be run with the idea of economizing and not as charitable institutions Economies both in food and in coal can be effected by this means

MEDICAL EXAMINATION OF RECRUITS TRANSFERRED TO A CIVILIAN AUTHORITY

Considerable dissatisfaction has arisen with regard to the medical examination of recruits by the present boards A man rejected at one examination has been passed as quite fit at a subsequent examination. The greatest cause of complaint is that the reports of civilian physicians are overridden by army surgeons A committee appointed by the government to investigate the subject has reported that in view of the evidence a change of system should be made at once and that the whole organization of recruiting medical boards and of the medical examination and reexamination should be transferred from the War Office to the Local Government Board, the body which controls the civil medical administration of the country

Sir James Mackenzie, in giving evidence before the committee, said that before the war army surgeons dealt with men who were fit and wanted to join the army, which was an easy matter Now individuals of impaired health are recruited for the lower classifications Army surgeons are not trained to deal with men of that description Mistakes and differences of opinion are bound to occur "As a young man" he said, "I told people with heart murmurs that they were in a bad way, but they did not die, and I began to separate the murmurs—the innocent ones from those of importance Some physicians have ignored this advance, and that is how you sometimes get a man who has been rejected passed 'A' by a physician who recognizes that a murmur is of no importance Then it comes as an enormous shock to the man who is passed 'A'" Sir James Mackenzie is able to distinguish the important from the unimportant murmurs with fair certainty, and thinks that the ordinary physician, if he had not been spoiled, could be taught to do the same Some murmurs might mean anything, and the man might be in perfect health He would pass a man "A" without hesitation if an innocent murmur was his only trouble He had seen a lad who had been rejected on account of heart murmurs He found that he was the leading athlete of his school, and that the following day he won a prize for running the longest race in record time Men were continually being rejected for life insurance through heart murmurs He gave a certificate to a man who had been rejected seven times That man had now been in the fighting and was quite well

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Marriages

Lieut Jarrett M Huddleston, M O R C, U S Army, Washington Barracks, to Miss Helen MacLain of Asheville, N C, at Washington, D C, July 26

Lieut Charles Ray Tompkins, M O R. C, U S Army, Chicago, to Miss Jessie McLean of Grafton, N D, at Chicago, recently

Samuel Benjamin Nickels, M D, Big Stone Gap, Va, to Miss Louise Parsons of near Petersburg, Va, at Richmond, Va, July 28

Asst-Surg Dozier Gibbs, U S Navy, Washington, D C, to Mrs Lulu May Lacy of Nashville, Tenn, at Portsmouth, Va, July 28

Asst-Surg Daniel Trigg, U S Navy, Norfolk, Va, to Miss Mary Balmer of Hampton, Va., at Norfolk, Va, July 26

Everett Monroe Ellison, M D, Washington, D C, to Miss Alberta Bayne Huntt of Alexandria, Va., Dec 30, 1916

Earl Kendall Holt, M D, Logansport, Ind, to Pearl Evelyn Hyatt, M D, of Syracuse, N Y, at Cincinnati, July 31

William David Cleland, M D, Harlansburg, Pa, to Miss Mary G Long of New Wilmington, Pa, July 24

Samuel Arthur Kleger, M D, New York City, to Miss Elizabeth Edna McColley of Minneapolis, July 3

Asst-Surg Stephen Roy Mills, U S Navy, to Miss Nelle Layton Kinter, both of Bradford, Pa, July 25

Herman John Bollinger, M D, Baltimore, to Miss Fannie Jeanette Millahubt of Wichita, Kan, July 29

Leon Woodford Kelso, M D, Paxton, Ill, to Miss Eleanor Watts of Carlinville, Ill, at Paxton, July 21

George Rudolph Vehrs, M D, to Miss Esther Genieve Stoddard, both of La Grande, Ore, June 5

Asst-Surg Edward A Brown, U S Navy, to Miss Lucile Dodson, at Norfolk, Va, July 21

Stephen Earle Vosburgh, M D, to Miss Ruth Cartridge, both of Augusta, Me, Aug 1

Robert H Herbst M D, Chicago, to Miss Marion Mable Steeves of Boston, recently

Leo Killian, M D, Blair, Neb to Miss Lois Peters, at St Louis, recently

Deaths

Linus F. Russell, M.D., Springfield, Ohio, Eclectic Medical Institute, Cincinnati, 1872, aged 68, formerly professor of clinical surgery and operative gynecology in his alma mater, surgeon to the Seton Hospital, and local surgeon of the Big Four and Panhandle System, associate editor of the *Eclectic Medical Journal*, who for seventeen years maintained an office in Cincinnati, died at his home, August 2, from cerebral hemorrhage

Lieut. N. A. Magenheimer, M. O. R. C., U. S. Army, Mooresville, Ind., Central College of Physicians and Surgeons, Indianapolis, 1898, aged 42, a member of the Indiana State Medical Association, on duty at Fort Benjamin Harrison, died in the post hospital, July 29, from injuries received in a collision between an automobile in which he was riding and an interurban car near Fort Benjamin Harrison

Lieut. Augustus Abraham Greenberg, M. O. R. C., U. S. Army, Brooklyn, Eclectic Medical College of the City of New York, 1904, Long Island College Hospital, Brooklyn, 1909, aged 39, a member of the visiting staff of Gouverneur, Mount Sinai and Beth Israel hospitals, died in the Jewish Hospital, Brooklyn, August 6, from septicemia which it is said followed an infected mosquito bite

William L. Dickinson, M.D., Saginaw, Mich., University of Buffalo, N. Y., 1879, aged 55, a Fellow of the American Medical Association, formerly professor of rectal diseases in the Michigan College of Medicine and Surgery, Detroit, rectal surgeon to the Woman's Hospital, Saginaw, died at his home, June 8, from leukemia

Charles Horace Lincoln Moseley, M.D., Brooklyn, New York University, New York City, 1890, aged 52, founder of the Central Hospital, Brooklyn, later known as the Bushwick Hospital, a member of the visiting staff of the Jamaica Hospital and German Hospital, Brooklyn, died in Poughkeepsie, N. Y., July 30

George Alexander Kirker, M.D., Detroit, Starling Medical College, Columbus, Ohio, 1878, formerly a Fellow of the American Medical Association, a member of the Michigan State Medical Society, and once president of the Wayne County Medical Society, died at his home, July 14

Blake Edwin Ray, M.D., Cuba, Ill., College of Physicians and Surgeons, Chicago, 1913, aged 26, a member of the Illinois State Medical Society, and secretary-treasurer of the Fulton County Medical Society, died at the home of his parents in Cuba, July 25, from acute nephritis

Marcus Boynton Austin, M.D., Brunswick, Mo., Marion-Sims College of Medicine, St. Louis, 1897, aged 47, local surgeon of the Wabash Railway, a member of the National Association of Railway Surgeons, died in the railway hospital, Moberly, Mo., July 22, from septicemia

Charles Richard Palmer, M.D., Tuscumbia, Ala., Vanderbilt University, Nashville, Tenn., 1883, aged 58, formerly a Fellow of the American Medical Association, a member of the Medical Association of the State of Alabama, died at his home, about July 27

Bertha S. Park, M.D., Denver, Denver College of Physicians and Surgeons, 1909, aged 39, died in a hotel in Chicago, August 6, from the effects of chloroform self-administered it is believed with suicidal intent, while suffering from melancholia due to ill health

Philander W. Payne, M.D., Franklin, Ind., Jefferson Medical College, 1858, aged 86, for several years trustee of Franklin College and of the Indiana College of Physicians and Surgeons, Indianapolis, died at the home of his daughter in Indianapolis, July 30

Kenneth Evernghim Kellogg, M.D., New Britain, Conn., College of Physicians and Surgeons in the City of New York, 1878, aged 43, a Fellow of the American Medical Association, died in the Hartford (Conn.) Hospital, June 10, from meningitis

Lieut. Floyd Smith Bates, M. C., N. G. Mo., assigned Second Infantry, Adrian, Mo., University Medical College of Kansas City, Mo., 1910, aged 30, while in camp at Fort Riley, Kan., August 7, was struck by lightning and instantly killed

Thomas A. Carey, M.D., Pen Argyl, Pa., Jefferson Medical College, 1884, aged 71, formerly a member of the Medical Society of the State of Pennsylvania; also a druggist, died in the Jefferson Hospital, Philadelphia, July 25

Rollin Alexander Kirkpatrick, M.D., Troy, N. Y., Albany (N. Y.) Medical College, 1898, aged 58, a Fellow of the American Medical Association, died in the Samaritan Hospital, Troy, July 28, from cerebral hemorrhage

Vernon M. Reynolds, M.D., Bristow, Okla., College of Physicians and Surgeons, Keokuk, Ia., 1885, aged 60, health officer of Creek County, Okla., died at his home, April 22, from heart disease following exposure

George Eugene Bliss, Owosso, Mich. (license, Michigan, years of practice, 1900), aged 71, a practitioner for forty-four years, a veteran of the Civil War, died at his home, July 23, from cerebral hemorrhage

John Tate Haden, M.D., Crawfordsville, Ark., Vanderbilt University, Nashville, Tenn., 1876, aged 64, for forty-three years a practitioner of Arkansas, died at his home, July 2, from cerebral hemorrhage

Ernest E. Best, M.D., Cameron, Tex., Grand Rapids (Mich.) Medical College, 1903, aged 39, a member of the State Medical Association of Texas, died at his home, June 18, from tuberculosis

James E. Lay, Jr., M.D., Sweet Home, Tex., Tulane University, New Orleans, 1901, aged 38, formerly a Fellow of the American Medical Association, died at his home, April 25, from heart disease

Ralph Frederick Koons, M.D., El Reno, Okla., University of Michigan, Ann Arbor, 1901, aged 41, a Fellow of the American Medical Association, died at his home, July 1, from uremia

Alwine Kattenbracker, Davenport, Ia. (license, Iowa, years of practice, 1887), aged 77, until a year ago a practitioner of Le Claire, Ia., died at her home, July 31, from heart disease

Leonidas W. Tandy, M.D., Creighton, Mo., Eclectic Medical Institute, Cincinnati, 1885, aged 67, a member of the Missouri State Medical Association, died at his home, June 5

George W. Holding, M.D., Breakabean, N. Y., Albany, (N. Y.) Medical College, 1884, aged 60, for twenty years a practitioner of Watervliet, N. Y., died in Troy, N. Y., July 25

Robert Andrew Kerr, M.D., Peoria, Ill., Rush Medical College, 1881, aged 60, formerly a member of the Illinois State Medical Society, died in Petoskey, Mich., August 3

McMillan Jones, M.D., Acme, Wyo., University of the South, Sewanee, Tenn., 1905, died at the home of his parents in Paris, Ill., July 27, from malignant disease

Anton Angelsberg, Marshalltown, Ia. (license, Iowa, years of practice, 1887), aged 62, a practitioner since 1877, died at his home, July 27, from heart disease

Napoleon B. Davis, Sullivan, Ind. (license, Indiana, 1897), aged 70, for forty years a practitioner, died at the home of his son in Farnsworth, Ind., July 30

John Coleman Kilgour, M.D., Harrison, Ohio, Pulte Medical College, Cincinnati, 1877, aged 71, a Confederate veteran, died at his home, July 23

Alonzo Givens, M.D., Mandeville, La., Tulane University, New Orleans, 1857, aged 82, a Confederate veteran, died at his home, about July 22

Josiah Gates, M.D., La Plata, Mo., Eclectic Medical Institute, Cincinnati, 1859, aged 85, died in the St. Joseph (Mo.) Hospital, July 24

Thomas Pettway Davis, M.D., Alexandria, Tenn., Vanderbilt University, Nashville, Tenn., 1879, aged 59, died at his home, July 18

James Cowper Hannan, M.D., New York City, New York University, New York City, 1873, aged 71, died at his home, August 2

Thornton Daggy, M.D., Indianapolis, Eclectic Medical College of Indiana, Indianapolis, 1908, aged 37, died at his home, July 29

Capt. Lewis Emerson Clark, Canadian A. M. C., Vancouver, B. C., McGill University, Montreal, 1913, aged 29, was killed in action in France, in June

Mary Herrick Baynum, M.D., Dexter, Me., Boston University, 1885, died at the home of her niece in Dexter, July 14, from cerebral hemorrhage

Charles A. De Cou, M.D., Pontiac, Mich., Michigan College of Medicine, Detroit, 1884, aged 55, died at his home, about July 17

Frederick C. Strong, M.D., Denver, Denver Homeopathic College, 1898, aged 60, died at his home, April 27, from nephritis

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

SOME MISCELLANEOUS NOSTRUMS*

Limestone Phosphate—As the nostrum "Orangeine" is not even remotely related to the orange, so "Limestone Phosphate" is devoid of "limestone" No one would learn this fact, however, without purchasing the preparation, for the newspaper advertisements give no hint of the misleading character of the name of this nostrum Probably with the idea of forestalling any action on the part of the federal authorities on the ground that it was misbranded, the trade package admits "This product is not derived from limestone" Many of the newspaper advertisements of Limestone Phosphate are prepared in such a way as to simulate reading matter There is nothing in the heading to show that the article that follows is a "patent medicine" advertisement, and even the telltale *"Adv"* at the end of the advertisement, which a government ruling demands, is not always found Limestone Phosphate in the advertisements is not capitalized, but is so printed as to give the reader the impression that it is an official pharmaceutical product Most of the headlines of the advertisements urge the drinking of hot water or "phosphated hot water" "Says Hot Water Washes Poisons from the Liver," "Says We Become Cranks on Hot Water Drinking," "Hot Water For Sick Headaches," "Drink Hot Water and Rid Joints of Rheumatic Rust"—these are some of the headlines of the "reading matter" advertisements urging the use of Limestone Phosphate The nostrum has been analyzed by several chemists The results of these analyses agree essentially in giving the composition of Limestone Phosphate as a mixture of baking soda and sodium acid phosphate As soon as this mixture is put in water it effervesces, due to the reaction between the acid sodium phosphate and the alkaline baking soda, giving off carbonic acid gas and leaving behind what is virtually a solution of sodium phosphate in water Those who are averse to paying a fancy price for a misleading name can purchase their sodium phosphate at any drug store under its own name The average price for sodium phosphate which, as an official product, can always be counted on as being pure and of standard strength is about twenty-five cents a pound, Limestone Phosphate sells at the rate of $1 40 a pound

Parmint.—This preparation emanates from the same city as the Sargol fraud, Binghamton, N Y, and is exploited by individuals who do business under the somewhat imposing trade-name, "International Laboratories, Inc" "Catarrhal deafness, head noises, catarrh of the stomach, catarrh of the bowels, loss of smell, lung trouble, asthma, bronchitis" and various other conditions should, according to the Parmint advertising, be treated with this nostrum The preparation comes in one ounce bottles for which 75 cents is charged The purchaser is told to empty the ounce of Parmint into a half pint bottle which should then be filled with sugar syrup The state chemists of Connecticut analyzed Parmint, and in the report of the Connecticut Agricultural Experiment Station for 1916 it is declared that "Parmint appears to be an alcoholic solution containing sugar, glycerin, a small amount of chloroform and a mixture of volatile oils with oil of anise predominating"

Varnesis—This stuff used to contain 18 per cent alcohol and, according to the state chemists of Connecticut, "less than 1 per cent vegetable extractives chiefly derived from emodin-yielding (laxative) drugs and capsicum (cayenne pepper)" The preparation as now put on the market contains 15 per cent. alcohol The manufacturers used to claim in the trade package (and the claims in all trade packages of "patent medicines" are subject to the federal Food and Drugs Act) that the preparation was a "Great Stomach and Rheumatic Remedy" These claims have now disappeared The claim used to be made that "Varnesis has cured and is today curing hundreds", this claim has also disappeared It used to be "the most perfect combination of roots and herbs ever put together", but it is so no longer It used to be said "Varnesis corrects all disorders of the stomach and restores vigor to all the organs of the body Varnesis stimulates, purifies and enriches the blood, soothes the nerves and gives the vigor of youth Varnesis restores sleep" All of these claims have been abandoned "Varnesis" is sold as a cure for rheumatism, and the directions state that it should be taken six times a day, two tablespoonfuls to the dose As "Varnesis" contains 15 per cent alcohol, this means that the person taking it according to these directions is getting as much alcohol as he would obtain from the consumption of a half-pint of raw whisky every four and one-half days, or, to put it another way, it is the alcohol equivalent of about twelve bottles of beer a week

Fruitatives—According to a booklet sent out by the concern that exploits it, "Fruitatives" consists of

"Fruit Liver Extract	⅞ of a grain
"Special Extract of Nux Vomica Fruit	1/20 of a grain
"Howard's Hydrochlorate of Quinine	⅓ of a grain
"Extract of Quassa	Q S"

This alleged formula is, of course, a joke and would be so regarded by any druggist or physician "Fruit Liver Extract" is the mysterious element that all falsely and misleadingly advertised "patent medicines" require for the purpose of successfully humbugging the public. "Special Extract of Nux Vomica Fruit" is probably nothing more mysterious than Extract of Nux Vomica, a drug long used in medicine and the one from which the deadly poisons strychnin and brucin are obtained The medical properties of nux vomica are those of strychnin and brucin "Hydrochlorate of Quinine" is one of the numerous salts of quinin and has the well-known action of quinin "Extract of Quassa" is probably a misprint for Extract of Quassia, a simple "bitter" The methods by which "Fruitatives" are exploited are typical of the quack-medicine school. Advertisements claiming by inference that "Fruitatives" will cure "paralysis," "consumption," "rheumatism," etc, have appeared in various American and Canadian newspapers It is probable that "Fruitatives" possess no virtues that are not to be found in the common aloin, belladonna and strychnin laxative pill

Correspondence

THE ROLL OF HONOR

To the Editor—I note with a great deal of satisfaction your reference to "No Need for Drafting the Medical Profession" as referred to in your editorial (The Journal, Aug 11, 1917) Doubtless there are very few laymen today who realize or appreciate to any degree the sacrifices which many members in our profession are making

I know of one instance where a physician gave up a practice of $100,000 per year to accept the pay of a major This man is now working in France I know another connected with one of the large resorts in this country in which he receives thousands of dollars a year, yet who is willing to sacrifice that and accept the commission of a captain that he may serve his country and give aid to the boys on the firing line

While there are thousands of cases similar to these, there are many slackers who are standing back and waiting for the other fellow to go, that this slacker may profit by the absence of the hero I am indeed glad to note that you propose to publish an honor roll I think it is unfortunate that you cannot also publish a dishonor roll, showing up at least to the medical profession those who, for pecuniary benefit, are willing to sacrifice their patriotism to their country and their loyalty to the medical profession

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* This material, with much additional, appears in the new edition of the pamphlet "Miscellaneous Nostrums,' price 15 cents

I believe it would be an excellent idea if the Surgeon-General would order every physician in the country who has accepted a commission in the Medical Reserve Corps to don his uniform whether he is on duty or not and in this way give an outward expression to the world that he is willing to undergo any sacrifice to serve his country and to be a striking example to the slacker I believe this would do more to stimulate interest among the physicians especially the younger men than anything else

One has only to look over the list of the great men of this country who have sacrificed practices families and self-interests and gone to the front to know who are the great physicians of this country

I wish to take this opportunity to express to you my appreciation of THE JOURNAL and of the way in which you have kept the medical profession and especially those who have gone in the service thoroughly interested regarding the movements of the profession in the war You surely have been doing your bit

CAPT H H [illegible] M R C South Poland Me

To the Editor —In Saturday's edition of THE JOURNAL (Aug 11 1917 p 476) I find a paragraph concerning the Roll of Honor which you are to publish in the near future

I wish to state that I sent in my application for commission in the Medical Reserve Corps sometime in June and being an officer in Base Hospital Unit No 11 I understand that these commissions will not be issued until sometime in the fall so as not to disrupt the organization of the Base Hospital Unit No 11 by ordering the various officers to different camps My name as well as those of the other officers who have sent in their commission will not be placed in this "Roll of Honor" for the reason that we have not had a chance to return the acceptance of the commission

Would it not be advisable therefore if you would add the personnel of the various base hospitals throughout the United States on this Roll of Honor? Of course this is only a suggestion as there is certainly no doubt in my mind that membership in the base hospitals necessarily obliges the holders to accept service at any time

HENRY SCHMITZ M D Chicago

To the Editor —In THE JOURNAL last week you promise to publish the Roll of Honor,' the names of those physicians who have accepted commissions in the Medical Reserve Corps There is also a list which should be put in a subroll at least and that is the 2 000 physicians who volunteered for the service and were rejected for physical defects All honor to those who have volunteered and have been accepted but no stigma should attach to those who made an honest effort but were not physically qualified

F W STARR M D Stanley, Wis

EXEMPTION OF MEDICAL STUDENTS

To the Editor —I was so much impressed by the figures that you published in THE JOURNAL last week, showing the large percentage of medical men of military age who have been called for military service that this morning, at a meeting of the New York City District Board I brought the matter to the notice of Judge Charles E Hughes, who is serving as our chairman Judge Hughes pointed at once to General Crowder's instructions to district boards, to the effect that medical students could not be exempted under the law, and that district boards had no power to grant such exemptions At first Judge Hughes suggested that an effort be made to obtain from the President, through the Secretary of War an appropriate supplement to the regulations which govern the work of the district boards Later in the day, after a careful rereading of the statute itself, Judge Hughes advised me that the President had no power to act in the matter and that no relief could be obtained otherwise than through an act of Congress I thereon dispatched the following telegram to Major Franklin Martin

> Charles E Hughes Chairman New York District Board advises that we cannot exempt medical students from draft Fifty per cent of medical students in first and second draft groups threatens welfare of country Judge Hughes advises only remedy is through act of Congress Will you take action? Would like something done before joint meeting of all New York State District Boards on Thursday sixteenth

It seems to me that the welfare of the country is bound up in this matter to a very large degree and it would be a pity if the danger were not averted merely because the medical profession as a body failed to act You are perhaps in a better position than any one else to facilitate concerted action in an emergency of this sort and it is for this reason that I am writing to you on the subject

S S GOLDWATER M D New York

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed Every letter must contain the writer's name and address but these will be omitted on request

THE STATUS OF MEDICINE AND SURGERY

To the Editor —I have been requested to prepare an article on the subject of The State of Medicine and Surgery in the United States Today Will you please inform me where I can get the necessary data? In regard to medical education, I can find it in my files of THE JOURNAL

GEORGE H JUILLY M D, San Francisco

ANSWER —The following is a list of references to articles on this subject

Nichol J H American Achievement in Medicine *Washington Med Ann* May 1917

Craig F A Progress of Medicine During the Year 1913, *Internat Clin* 1 1913

Jackson T T The Advance of Good Surgery *Texas State Jour Med* March 1917

Crile Contemporary American Surgery *Brit Jour Surg* July 1916

Cowden C N The Trend of the Times in Medicine and Surgery *Jour Tennessee Med Assn* April 1917

Parallel Between American and French Surgery Paris Letter THE JOURNAL March 14 1914 p 821

Crile G W Contemporary American Surgery, *Brit Jour Surg* April 1915

Boyd J D Development of American Medicine *Texas State Jour Med* June, 1915

Literature on Recent Medical Discoveries Queries and Minor Notes THE JOURNAL Jan 17 1914 p 224

Mock Harry E Industrial Medicine and Surgery The New Specialty THE JOURNAL Jan 6 1917 p 1

Van Sweringen, C Medicine *Indiana State Med Assn Jour* January 1915 (This number contains papers by various men on advances in each branch of medicine and surgery)

NO ACTION ON LAW REGARDING OSTEOPATHS IN ARMY

To the Editor —I should like to know if Congress has recently or ever made a ruling which gives osteopaths the privilege of entering the Medical Corps of the Army or Navy in the same rank as a physician of the regular school I have seen in the papers recently that this law was passed in Congress and I wish to know whether the item was authentic

W H MINER M D, Farmer City Ill

ANSWER —An amendment to the effect that one osteopath should be assigned to each thousand troops in the United States Army the osteopath to be given the rank of first lieutenant in the Medical Corps, was recently introduced in Congress No action has been taken on this amendment.

HIGH CALORY DIET IN TYPHOID FEVER

To the Editor —Please give me a working outline of the high calory diet in typhoid fever referred to by Dr Warren Coleman New York, in his article in THE JOURNAL, Aug 4 1917

A L. GLAZE, JR., M D, Athens Ala

ANSWER —Coleman has suggested various combinations of milk, cream and lactose to be given in the earlier stages of the disease Eggs may be added to make up the protein requirement Some of the cream may be given in the form of ice cream In certain cases if patients have no difficulty with mastication, custards, mashed potato, cocoa, apple sauce and cereals are given, although these articles are usually more suitable later in the course of the disease It is difficult to give more than 3,000 calories a day in the early part of the disease When the temperature is falling and in convalescence, from 4,000 to 6,000 calories may be given

Examples of some of the milk, cream and lactose mixtures are as follows

	Calories
For 1,000 calories a day	
Milk, 1 quart (1,000 c c)	700
Cream, 1⅔ ounces (50 c c)	100
Lactose, 1⅔ ounces (50 gm)	200
This furnishes eight feedings, each containing	
Milk, 4 ounces	80
Cream, 2 drams	15
Lactose, 6 drams	24
For 2,000 calories a day	
Milk, 1½ quarts	1,000
Cream, 8 ounces (240 c c)	500
Lactose, 4 ounces (125 gm)	500
This furnishes seven feedings, each containing	
Milk, 7 ounces	150
Cream, 1 ounce	60
Lactose, 18 gm	72
For 3,000 calories a day	
Milk, 1½ quarts	1,000
Cream, 1 pint (480 c c)	1 000
Lactose, 8 ounces	1,000
This furnishes eight feedings, each containing	
Milk, 6 ounces	120
Cream, 2 ounces	120
Lactose, 1 ounce (30 gm)	120

The following is a sample diet for a day in which 3,910 calories are to be given

	Hours	Total	Calories
Milk, 6 ounces	9 a m , 1, 3, 7 p m	1,260 c c	860
Cream, 2 ounces	10 p m 1, 4 a m	420 c c.	840
Lactose, 10 gm		70 gm	280
			1,980

At 11 a m	Calories
Egg, 1	80
Mashed potato, 20 gm	20
Custard, 4 ounces	250
Toast (or bread), 1 slice	80
Butter, 20 gm	150
Coffee	
Cream, 2 ounces	120
Lactose, 20 gm.	80
	780

At 5 p m	Calories
Egg, 1	80
Cereal, 3 tablespoonfuls	150
Cream, 2 ounces	120
Apple Sauce 1 ounce	30
Tea	
Cream, 3 ounces	180
Lactose, 20 gm	80
	640

At 7 a m	Calories
Egg, 1	80
Toast, 1 slice	80
Butter, 20 gm	150
Coffee	
Cream, 2 ounces	120
Lactose, 20 gm	80
	510

Lactose lemonade may be substituted for the milk mixture at 3 o'clock

The article from which the foregoing diet was taken appears in Musser and Kelly, Practical Treatment, Volume IV

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska Juneau, Sept 4 Sec, Dr S P Dawes, Juneau

Arizona Phoenix, Oct 2 3 Sec., Dr John Wix Thomas, 306 Goodrich Bldg, Phoenix

Colorado Denver, Oct 2 Sec, Dr David A Strickler, 612 Empire Bldg, Denver

Hawaii Honolulu, Sept. 10 13 Chairman, Dr Grover A Batten, 1141 Alakea St, Honolulu

Idaho Pocatello, Oct 2 Sec, Dr Charles A Dettman, Burke

Massachusetts Boston, Sept 11 13 Sec, Dr Walter P Bowers, Room 501, No 1 Beacon St, Boston

Minnesota Minneapolis, Oct 2 5 Sec, Dr Thomas S McDavitt, Lowry Bldg, St Paul

Montana Helena, Oct 2 Sec, Dr William C Riddell, Power Bldg, Helena

New York Albany Buffalo, New York City and Syracuse, Oct 2 5 Chief, Examinations Division Harlan S Horner State Education Bldg, Albany

Porto Rico San Juan Oct 2 Sec, Dr M Quevedo Baez, San Juan

Rhode Island Providence, Oct 4 5 Sec, Dr Byron O Richards, State House, Providence

Utah Salt Lake City, Oct 1 2 Sec, Dr G F Harding, Templeton Bldg, Salt Lake City

Social Medicine, Medical Economics and Miscellany

OBSERVATIONS ON THE PHYSICAL EFFECTS OF FLYING

HARRY L SCHURMEIER, M D
Captain, Medical Reserve Corps, United States Army
Fort Snelling, Minn

The year and a half during which I was constantly associated with the flying at the aerodrome at North Island, San Diego, Calif, gave me ample opportunity to observe the physical status of the flyers Two things must be discounted in considering this matter first, the equable climate of San Diego, and secondly, the excellent physical and nervous stamina of the men participating Regarding the former, San Diego presents practically the same climate as southern Italy, in consequence, the diseases which are of daily occurrence in more rigorous climates are rarely seen there

The men are chosen from the Army at large, practically every corps being represented with the exception of the medical corps The applicants are subjected to a most strenuous physical examination, in which not only the general physical and nervous system is considered but also the temperament of the man Men showing marked nervous tendencies are frequently turned down Special attention is given to the vision and to the organs of equilibrium, any defect in the latter would obviously unfit a man for service in which any position at any angle is of constant occurrence

It may readily be seen, therefore, that men subjected to so careful a selective process, and living in such an equable climate, would have fewer physical ailments than have flyers in general From my observations, I came to the conclusion that the effects of flying on the individual were manifest chiefly on the nervous system and on the general health indirectly, through the nervous system

One of the main barometrics of fluctuation in the status of a healthy individual's nervous tone is the blood pressure.

Fear, unusual nervous tension, or, in fact, any definite variation of the emotions, will cause fluctuations in blood pressure.

BLOOD PRESSURE EXPERIMENTS

The blood pressure experiments were carried out as follows Certain men, twenty in all, were selected, and their blood pressures taken daily, immediately before and after each flight The experiments were carried out over a period of six weeks It was not found feasible to make observations in the air on account of the noise and vibrations of the machines As a result of these experiments it was found that the mean general average of blood pressure compared very favorably with the normal of that age It was the comparative readings before and after flight which were of interest These readings were shown to be definitely higher in nearly every case immediately before flying than on returning to the ground The few exceptions to this rule were in men showing marked nervous fatigue or to whom some disagreeable incident had occurred in the air In these men the blood pressure was higher on their return to the ground and remained so for several hours afterward The fluctuations of the diastolic pressure were synchronous with those of the systolic, but to a lesser degree, showing an average of three points less

These findings are attributed to the fact that the moderat excitement attending the anticipation of flight, combined wit the naturally increased mental and nervous activity, cause the rise in blood pressure On the finishing of the flight th immediate nervous relaxation is shown by the drop i pressure The differences in the readings occurring befor and after flight were more marked in the newer flyers whe first placed under instruction, showing their increased nervous tension at that time The older and more experience flyers showed scarcely any variations in pressure readin before and after flight, and their general average was low than the newer men The records showed no fluctuation of sufficient degree to be suggestive of anything pathologic merely accentuating the fact of the increased nervous strain to which the aviator is at all times subjected and showing the gradual adaptation of the individual to this strain

Occasionally men complained of feeling stale tired and not up to the mark This was ordinarily due to late hours need of a vacation or lack of stamina on the part of the individual Irritability on the part of some of the instructors was quite marked at times their work is unquestionably very trying and their number of hours in the air greater than the others

EFFECT OF ALTITUDE FLIGHT

Regarding altitudes and the physical effect on the flyer it might be noted here that the mean atmospheric pressure at sea level will balance a column of mercury 30 inches high and that in ascending there is a direct fall in pressure of 1 inch of mercury to every thousand feet ascended The relative proportion of the constituent gases of the atmosphere emains the same with the exception of the watery vapors which are confined to the lower levels As the aviator ascends the tension of the gases in the bodily fluid balances that of the surrounding air Obviously the quantity of oxygen per cubic foot of air becomes progressively less as the pressure decreases further there is a drop in the arterial blood pressure of the flyer

The latter factor is slight in a healthy adult and of minimum importance up to 6 500 feet above this altitude the blood pressure drops more rapidly In older men with some ardening of the arteries there is a much more decided drop n pressure which change is evidenced by high headache ertigo and tinnitus aurium This fact may be noticed any as in crossing the mountains in a railway train If the ortly florid man is questioned he will acknowledge these mptoms which are largely due to lack of elasticity of the ood vessels and consequent inability on their part to ntract and establish rapid equilibrium between the arterial essure and the lowered atmospheric pressure

As has been previously stated the watery vapors are con- ned to the lower strata and as these are instrumental in taining the heat of the sun's rays the atmosphere becomes oler as one ascends It will thus be seen that in making titude flights three main factors must be considered first ere is less oxygen to breathe second the arterial blood ssure is less and last there is a decided drop in tempera e. Some interesting and valuable data have been gathered various times both in this country and abroad in regard the effects of altitudes on the individual these experi- nts have been carried out on the peaks of high mountains has in the first place been shown that among mountain mbers much more energy is expended by the untrained n by the trained climber, further that men living in high itudes develop a higher percentage of erythrocytes and emoglobin This variation has been shown to be approx- ately 5 million red cells per cubic millimeter at sea level 8 million at 14 000 feet. The hemoglobin is increased from to 30 per cent

SCARCITY OF OXYGEN MAY CAUSE SICKNESS

The reason for this can be readily seen the amount of ygen per cubic foot of air is much less at high altitudes bodily oxygen demand remains constant, therefore any lden muscular activity would bring the margin of oxygen ety down to the danger zone In consequence nature npensates by giving the blood more oxygen-carrying and ring elements so that in case of any excessive exertion body would have an adequate supply of this necessary Altitudes have a tendency to increase the chest capac- in this way increasing the oxygen intake. Mountain kness a malady which is directly attributable to the scar- y of oxygen at the higher levels, occurs in Europe as low 9 800 feet, in the United States as a rule at considerably her points The symptoms of this disease are a heavy ressed feeling in the chest, with dyspnea and cyanosis re are also varying degrees of mental depression accom- ied by nausea and vomiting These symptoms are unquestionably accentuated and brought on at a lower level by the mountain climber owing to the excessive physical effort in making the ascent Sitting quietly in the aeroplane we should not expect such severe symptoms nor should we expect any difficulty at all at such low altitudes

Some men complain of slight vertigo and headache when flying at altitudes of between 12 000 and 16 000 feet, these symptoms are dispelled by deep inhalation Some men who have flown at high altitudes constantly over a long period of time have developed a definite susceptibility to the effects of altitudes One of the most pronounced cases of this kind is that of Lieutenant Cowdin an American in the French Army Mr Cowdin has won the Croix de Guerre, the Medaille Militaire the cross of the Legion of Honor, and the War Cross He has brought down some seventeen of the machines of the enemy but at the present time is unable to fly at an altitude of over 3 000 feet without experiencing most annoying palpitation of the heart and dyspnea The more severe symptoms of altitude sickness are immediately relieved by the inhalation of a few whiffs of oxygen or the administration of some cardiac stimulant The direct causative factor of this condition seems to be a definite weakening of the myocardium owing to an inadequate supply of oxygen this being supplied the heart immediately resumes its normal functioning This all tends to emphasize the value of training and the need of excellent physical form for the aviator It is suggested that men who are going out after altitude records should live in the higher mountain regions for a time so that the body will be in the best possible condition to meet the demands of the occasion •This not being practicable a small oxygen tank with an inhaler may be taken along This procedure corresponds to the necessary carburetor adjustment with which the aeroplane is provided on these occasions

PHYSIOLOGIC EFFECT OF ACCIDENTS

Two distinct phenomena stand out vividly in my mind in connection with men who have been subjected to a fall of any severity These are first the immediate effects and secondly the more remote after-effects I have seen men pulled out of wrecked machines after a fifty-foot fall or a bad side slip suffering from extreme shock as evidenced by a weak pulse subnormal temperature and pallor with either an active delirium or a stupor These men may recover and come back and fly as well as ever Other men who were only moderately shocked at the time of the accident later developed vague nervous symptoms which persisted for months incapacitating them for work of any kind Some of these men are forever afterward machine shy One aviator had a slight mishap on landing, the machine was turned over but no one was hurt For a long time afterward this man consistently overcontrolled and spoiled all his landings

HYPNOTIC EFFECT AS A CAUSE OF ACCIDENTS

Another rather interesting condition of less frequent occurrence is that in which the flyer apparently experiences a lapse or a period during which he remembers nothing and is unconscious of everything which has occurred A few men have acknowledged to me that they have had such an experience The most glaring of these lapses occurred to Mr Herbert Latham who at the time was flying an Antonette monoplane on Dominicus field in 1911 Latham came down on top of the grand stand and smashed his machine He explained the affair by stating that at his last recollection of anything he was flying level at an altitude of some 500 feet, the next thing he knew he was on top of the grandstand The general consensus seems to be that the monotonous drum of the propeller combined with the entire removal from external stimulus has a hypnotic effect and that this effect is much increased if the aviator looks steadily at the propeller In other words he should keep interested in the passing show Many accidents in which the aviator has lost his life, and which are of such a nature as to be entirely inexplicable, may be attributed to this cause One of the main attributes of the stabilizer with its automatic control, as demonstrated by Mr Macey in his recent invention, will undoubtedly tend to prevent accidents of this nature. It has been repeatedly demonstrated that a land machine will float, for a time at least, if unfortunate enough to land in the water The sad death in 1914, of Lieutenent Gerstner, who endeavored to swim ashore after his machine had gone into the ocean, suggests the advisability of staying with the plane His companion was saved after being kept afloat for several hours by holding on to the buoyant wings

I have known many flyers both among the civilian and the military aviators, and have tried to pick a type, a man whose entire physical and mental make-up should enable him to perfect himself in the art of flying My conclusions are that the type does not exist I believe that the early training of athletics is invaluable as a preliminary for flying Athletics give a man instant perception, quick judgment, with a rapid and facile coordination of the physical, all of which are essential assets in the flying game

Many of these intrepid pioneers of the air have lost their lives in this most hazardous but most fascinating of all sports These losses should not be in vain, the cause of each fatality should be carefully determined, so that the mistakes will not be repeated The American is a composite and should lead in aviation, in him is combined the daring of the French with the ultraconservatism of the English and German, and there are certainly times when both of these factors are needed

Gas-Heated Appliances and the Air of Workshops

Charles Weisman, sanitary chemist in the United States Public Health Service, has recently described (*Pub Health Bull* 31) the effect of gas-heated appliances on the air of workshops The work was done in connection with the general investigation of the health of garment workers in New York City

An analysis of air samples in shops of the garment industry was made with reference to the amount of carbon monoxid gas present Studies were also made of the conditions of gas-heated appliances Laboratory examinations were made of gaseous combustion products of various kinds of gas-heated pressing irons Tests were made of the permeability of the walls of various kinds of flexible gas tubing, of the security against leakage of gas connections, and of the hygienic significance of the presence of small amounts of carbon monoxid in the air of confined, inhabited places Air samples were taken from 244 shops Of these, twenty-nine, or 11 8 per cent, were found to contain over 100 parts of carbon monoxid per million parts of air, the average for the twenty-nine samples being 325 parts, ranging from 105 to 1,431 parts In fifty-five shops the carbon monoxid ranged from twenty-five to 100 parts per million, or an average of 47 3 parts The investigation was conducted during the open window season During the winter season, with the windows closed, the contamination would undoubtedly be worse. No mechanical system of ventilating was employed in any of the shops Defective rubber tubing was found in fifty-two of the 244 shops, or 21 3 per cent of the total In thirty-six, defective tubing was found, and in the remainder of the fifty-two, in addition, there were found defective gas tubing connections, defective gas irons and defective flexible metal tubing, the last being found in sixteen shops, or 6 5 per cent of the entire number of shops examined One out of every four shops examined was using some kind of defective gas tubing, and 7 per cent had poor gas tubing connections In a number of reinspections, even higher percentages of carbon monoxid were found in some instances Sixty-eight permeability tests were made on the walls of thirty pieces of gas tubing, comprising sixteen different varieties of tubing None were found to be gas-tight, rubber tubing is least permeable to illuminating gas, flexible metal tubing and "composition" tubing give considerable leakages of this gas Defective and poorly fitting rubber connections, as a rule, are greater sources of leakage than defective gas tubing

The symptoms of chronic carbon monoxid poisoning, such as might be produced by the amounts of gas found in the investigation in the air of workshops, are headache, pallor, anemia, derangements of the digestive system, a slow pulse, mental dulness, fatigue after but little exertion, failing memory, palpitation of the heart, and a tendency toward difficult breathing Carbon monoxid has produced symptoms in different individuals in amounts of 0 3 per cent. for fifty minutes, 0 4 per cent. for forty minutes and twenty-five minutes, 0 25 per cent for twenty minutes, 0 5 per cent for 11½ minutes, etc The injurious effect arises from the affinity of the hemoglobin of the blood for the carbon monoxid

Book Notices

EXPERIMENTAL PHARMACOLOGY By Dennis E Jackson, Ph D, M D, Associate Professor of Pharmacology, Washington University Medical School, St. Louis Cloth Price, $4 Pp 536, with 390 illustrations. St. Louis C V Mosby Company, 1917

This laboratory manual fully sustains the author's reputation as an investigator and master of technic The introduction shows not only a detailed knowledge of the actualities and difficulties in physiologic experimentation, but an abilit to state prospective difficulties so vividly that the student ca benefit to the greatest degree by the work of others In th beginning of the laboratory work a concise and almost com plete list of apparatus is given in such form that an instru tor preparing for the work has little to do but order th list The illustrations are exceptionally good, and profus However, one wonders why space and expense should taken with cuts of beakers, graduates, battery jars, etc although this is excusable in consideration of the mar valuable illustrations not easily found in other works this book, as in most works dealing with surgical operatio of any kind, the author's methods as illustrated need not considered as the only methods, but as good methods Aft a course in physiology in a good school, many of the detai of the operative procedure should be superfluous, but f most students into whose hands this book comes, that tin has not yet arrived Jackson's manual is primarily prepar for the laboratory of pharmacology, but it may be used wi profit also in physiology The drug experiments are exce lently presented More amphibian experiments might profitably included so that the usefulness of the book shou not be limited in places in which mammals are less eas procurable than in the larger cities There are many val able suggestions in the concluding chapters on shop wo and photography The list appended of dealers in app ratus, tools, supplies, equipment, etc, is important in its and will save the time of many a laboratory worker

ASTHMA PRESENTING AN EXPOSITION OF THE NONPASSIVE EXPI TION THEORY By Orville Harry Brown, A B, M D, Ph D With foreword by George Dock, Sc D, M D, Professor of Medicine Wa ington University Medical School, St Louis Cloth Price, Pp 330, with illustrations St Louis C V Mosby Company, 1917

This book represents nine years of study of asthma by t author, and is chiefly a support of his nonpassive expirati theory In a foreword to the book, Dr George Dock stat that he has been much impressed by the accuracy of t author's clinical work and by the fulness and symmetry the literary production He says further, "The student a the practitioner can find in this book a true picture of t previous speculations and present knowledge of asth expressed clearly and concisely "

Dr Brown's introductory chapter is most interesting outlines his method of study, and follows with a short chapt on the definition of the disease The third chapter, which perhaps one of the most important in the book, conce historical observations and theories There are 470 ref ences to original articles on this subject, and practica every known theory as to the causation of this condition given, including many that are ridiculous on first thought, well as others which have borne the test of time and dem more careful consideration These data are analyzed un fifteen headings, and give in outline the present state of knowledge of asthma After the consideration of the anat and physiology of the lungs and the pathology and physiology of dyspnea the author states his theory. In brief this is that asthmatic dyspnea is essentially a mechanical interference with the blood and lymph circulation in the lung due to heightened intra-alveolar tension which arises from nonpassive expiration. By nonpassive expiration is meant morbid attention to the act of respiration such as results in coughing sneezing etc which make expiration an active muscular effort instead of a passive one. Numerous physiologic and pathologic factors accompany such efforts all of these aiding in the production of the asthmatic dyspnea. The author's theory is based on a close study of numerous attacks of the disease.

He then proceeds to coordinate with this theory of asthma other points of relative importance such as the anaphylactic factors reflexes nasal conditions coincident tuberculosis and emphysema focal infection etc. This occupies the first half of the book.

The remainder of the book is devoted to the pathology of asthma clinical history physical signs and symptoms diagnosis treatment and prophylaxis. In the discussion on treatment the author describes all of the already known treatments with particular reference to special treatment adopted ward overcoming the particular pathology which accompanies the nonpassive expiration. The treatment prescribed is rational and inclusive of all tested methods.

The Baby's Food Recipes for the Preparation of Food for Infants and Children. By Isaac A. Abt M.D. Professor of Diseases of Children in the Northwestern University Medical School. Cloth. Price $1.25 net. Pp 148. Philadelphia W. B. Saunders Company 1917.

This book is prepared by the author in order to furnish oung mothers nurses and caretakers with recipes for the reparation of commonly used babies foods. The recipes are llected from numerous reliable sources. The book includes ddition to a great number of recipes a table of weights d measures and lists of mineral constituents and of the loric value of various foods. The concluding chapters are oted to diet lists for children of various ages and special et lists for diarrhea and constipation. Instructions are also ven regarding various mechanical and hydrotherapeutic hods for babies. The book will be found of great prac- al value to those for whom it is intended.

City Milk Supply. By Horatio Newton Parker. Cloth. Price $5. Pp 493 with 63 illustrations. New York McGraw Hill Book mpany Inc. 1917.

his book has chapters dealing with the general physical l chemical characters of milk the diseases communicated milk, sanitary milk production dairy cattle and the dairy m transportation of milk and the milk contractor ere is also an excellent section on control of the public k supply. The style is clear and objective and typo- aphic errors are practically absent. The treatment of steurization and of the use of the score card is particularly l and discriminating. The discussion of methods of con- l of the public milk supply is conservative and in line th the best practice in this country. The illustrations are most uniformly good, and the tabular matter, of which re is a great deal, is well presented. As a whole the book ll prove of great value to all practical public health rkers.

he American Encyclopedia and Dictionary of Ophthalmology ited by Casey A. Wood M.D. C.M. D.C.L. Professor of Ophthal ogy and Head of the Department College of Medicine University Illinois. Volume 10—Lenicet to Muscles Ocular. Cloth. Price $8. cago Cleveland Press 1917.

he important and outstanding topics in Volume 10 of this endid work are lenses, military surgery of the eye, and a uminous article on the ocular muscles which expounds in ail the theories of Savage on the eye muscles and the oretical brain centers controlling their action. Among er subjects included are localization of foreign bodies, t, massage, ocular complications of measles, and mer- y. In every respect the high quality of this great work on eye is maintained in the present volume.

Medicolegal

Damages for Failure to Remove Gauze and Portion of Tube

(Baer vs. Chowning (Minn.), 161 N. W. R. 144)

The Supreme Court of Minnesota affirms an order denying a motion made by the defendant for judgment or a new trial, after a verdict for $2,500 had been rendered in favor of the plaintiff. The court says that the plaintiff's right to recover damages was limited to negligence in leaving a gauze pack or sponge and a portion of a rubber drainage tube in her body. There were no other claims of negligence. It was not claimed that the defendant was unskilful or negligent in the performance of the operation. The evidence was that, Aug. 11, 1914, the defendant performed an abdominal operation on the plaintiff. Two incisions were made, one in front and one in the side. The one in the side did not heal. A fistulous opening developed. July 14, 1915, another surgeon performed an operation. He found in the abdominal cavity, according to his testimony, a gauze pack or sponge which had been used in the operation and a portion of a rubber drainage tube. This testimony made the question of the defendant's negligence for the jury. With regard to the amount of the verdict: The plaintiff's suffering had been severe. She had been incapacitated from work. If her testimony and that of others was credited, she was still in bad health and in a nervous and enfeebled condition and far from well. There was no direct testimony that her suffering or her condition resulted from the leaving of the pack and the tube in the body. It was a matter of fair inference for the jury. As soon as they were removed, the wound healed and pains became less. Perhaps the verdict was large. This court cannot say that it was excessive.

Bases for Expert Testimony

(Chicago, R. I. & P. Ry. Co. vs. Jackson (Okla.), 163 Pac. R. 823)

The Supreme Court of Oklahoma, in reversing a judgment rendered against the railway company for damages for personal injuries, says that it is well settled that the opinion of an expert witness is permissible when based on his personal knowledge of the matter under investigation, or on competent evidence in the case, or on both. But the authorities are not in harmony as to the proper limitations that should be placed on the testimony of consulting physicians in giving expert testimony as to the nature or probable effect of an injury. The great weight of authority appears to support the rule that statements made to a physician by a patient, as to the cause and manner of the happening of an injury, which statements are *not made so near in point of time to the fact* as to constitute a part of the res gestae or essential circumstances of the case, are not admissible in evidence. In many of the cases the testimony of a physician as to statements made to him by a patient in relation to the history of his case — that is, as to his past or previous condition, symptoms, sensations and feelings — is held admissible when sought to be introduced in connection with the physician's opinion as an expert, as furnishing a basis therefor, or for the reasons on which such opinion is founded. On the other hand, a line of authorities support the rule that the testimony of a physician as to statements made by him to a patient concerning the history of his case, his past condition, symptoms, pain and suffering, is hearsay and inadmissible. Aside from the question of the statements in proper cases being admissible as a part of the res gestae, the correct rule, it would appear, should permit a physician to testify to a statement or narrative given him by his patient in relation to his condition, symptoms, sensations and feelings, both past and present, when made in connection with his own opinion as to the cause of the injury, though the statement may not be received as independent evidence to establish the fact of the injury. When made the basis, in part at least, of the physician's opinion, such testimony is admissible from necessity, because in this way only can the bodily condition of the party, who is the subject of the injury, be ascertained. The rule should not, however, be extended beyond the necessity on which it is founded In such circumstances, and, indeed, whenever declarations are admissible, it is for the jury to determine whether they express the real feelings of the party, or whether they are feigned, and for obvious reasons, whenever there appears a motive to manufacture testimony, the declarations should be subject to the closest scrutiny On the other hand, facts not required for a satisfactory diagnosis, such as the cause of an injury, as to the instrument with which it was inflicted, or the like, constituting a narrative of the incidents of a past transaction, are incompetent In other words, this court holds that a physician in giving evidence as an expert may testify to a statement made to him by the patient in relation to his condition, symptoms, sensations and feelings, both past and present, when such statements were received and were necessary to an examination, with a view to his treatment, and when made the basis, in part at least, of the physician's opinion, but such testimony cannot be considered as independent evidence of the facts stated, except in cases in which the same is competent as forming a part of the res gestae Facts not required for a satisfactory diagnosis, such as the cause of an injury, the means or manner by which it was inflicted, or which attempt to fix the responsibility for its occurence, are regarded as a narrative of the incidents of a past transaction, and are accordingly rejected, unless made so near in point of time as to constitute a part of the res gestae Expert testimony of a physician, based on a physical examination of the patient, after action instituted by him to recover damages for an alleged personal injury, though made partly for the purpose of enabling the physician to testify as a witness, is not, on that account alone, incompetent, though constituting a fact which may materially affect his credibility

Importance and Validity of Vital Statistics Law

(State vs Norvell et al (Tenn), 191 S W R 536)

The Supreme Court of Tennessee holds valid the vital statistics law of that state, Chapter 30 of the Acts of 1913 The court says there can be no question but that this statute will tend to promote the safety, health and well-being of the community The state of Tennessee maintains a board of health at considerable expense, created for the purpose of fighting and endeavoring to control the diseases to which the inhabitants of the state are subject Perhaps the most important duty of the state board of health is to take steps, in cooperation with local health officers, for the prevention of disease This work cannot be intelligently or effectively prosecuted without the information which the statute in question is designed to afford The various local registrars are required to file the certificates procured by the undertakers with the board of health From these data the board of health can determine the needs of each particular community in the state, and may employ the necessary measures accordingly These reports will show where tuberculosis prevails, where typhoid predominates, where there is malaria, and, generally speaking, will indicate the hygienic wants of each section of the state The board of health will thus be able to take the precautions and administer the relief most needed by every community Such a system is just as necessary to a successful campaign by the board of health as is information concerning the enemy's movements to the general in command of an army There can be no specialized or well-directed effort by the board of health without such knowledge Looking to another aspect of the material welfare of the state, no considerable immigration from one state to another now occurs until those coming in have made inquiries as to the health and death rate of the particular locality to which they intend to move With the information forthcoming from the operation of the vital statistics law, the board of health will be in a position at all times to reply to such inquiries from those desiring to move into Tennessee The provisions of the statute with reference to the registration of births, which were not drawn in question on this appeal, will obviously be most useful A permanent record of the births and parentage of all persons born in the state will be of great service in the administration of estates and in fixing the devolution of property Such matters are often questions of doubt in important litigation The statute makes certified copies of these records prima facie evidence. The records of births likewise will prove of much value in the enforcement of the laws against child labor They will make fraud and deception on the part of parents and employers impossible The court might mention other beneficent offices of the statute, but sufficient has been said to demonstrate that the act is a wholesome exercise of the police power of the state Such being the view of the act, it is obvious that the constitutional objections urged against it were not well made, wherefore the court reverses a judgment quashing an indictment of the defendants, who were undertakers who were charged with handling and removing a dead body without a permit for its removal, the motion to quash having been sustained on the ground that the vital statistics law was unconstitutional It is conceivable, of course, that the attending physician or local registrar or others may prove obstreperous or unmindful of the obligations imposed by the statute, but, in such an event, the undertaker may safely proceed with the disposition of the body If he is diligent himself to comply with the law, the court will not punish him for the default of others The duties placed on him by the statute will put him to some trouble Organized society is entitled to demand such services of any citizen, however, for the health and safety of all, just as for the same reasons, the property of any citizen may be destroyed, without compensation

Society Proceedings

COMING MEETINGS

Am Assn Obstetricians and Gynecologists, Newark, N J, Sept 17
American Electro Therapeutic Association, Atlantic City, Sept 11
American Roentgen Ray Society, Pittsburgh, Sept 19 22
Colorado State Medical Society, Colorado Springs, Sept 25 27
Indiana State Medical Association, Evansville, Sept 26 28
Michigan State Medical Society, Battle Creek, Sept. 4 6
Minnesota State Medical Association, St. Paul, Oct 10 20
Mississippi Valley Medical Association, Toledo, O, Oct 9 11
Missouri Valley Medical Society, Lincoln, Neb, Sept 20 21
Pennsylvania State Medical Society, Pittsburgh, Sept 24 27
Utah State Medical Association, Salt Lake City, Sept 12 13
Vermont State Medical Society, Barre Oct 11 12
West Virginia State Medical Association, Fairmont, Oct 2 4
Wisconsin State Medical Society, Milwaukee, Oct. 3 5

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Diseases of Children, Chicago

August, XIV, No 2

1 Epidemiologic Data in Poliomyelitis Epidemic in New York St
M Nicoll, Jr, Albany, N Y—p 69
2 Infant Welfare Work in War Time G L Meigs, Washingt
D C—p 80
3 *Uric Acid Content of Blood in New Born J P Sedgwick
F B Kingsbury, Minneapolis—p 98
4 *Effect on Human Milk Production of Diets Containing Vari
Forms and Quantities of Protein B R Hoobler, Detroit
p 105
5 *Congenital Skin Defects. I A Abt, Chicago—p 113

3 **Uric Acid Content of Blood in New-Born**—A parallel between the high uric acid content of the blood of the ne born and the high excretion of this substance during the fi three or four days of life was found by Sedgwick and King bury They regard this as indirect evidence that human fet tissues possess no uricolytic power, for it would be diffic to imagine so great a production of uric acid if the tissu themselves possessed the power to destroy it Whether t decomposition of nuclein material, which must be looked as the cause of this uric acid increase in the blood, is relat to the striking changes in the blood cells, particularly in t changes in the partition of the white corpuscles taking pl at this time, or to nuclein destruction in other parts of body, as yet unknown, or to both, must be left to the fut to decide These results fit in well, however, as the c

rective link in the theoretical chain of early leukocytosis—fall in leukocytes—flood of uric acid in the blood—high uric acid excretion—uric acid infarcts.

4. **Effect of Diet on Human Milk Production.**—This problem was studied by Hoobler, the subjects being healthy nursing mothers. He found that a nutritive ratio of 1:6 or narrower seems best adapted to the need of nursing mothers. (This ratio refers to the proportion of digestible protein to digestible fat and carbohydrates, the latter reduced to a carbohydrate basis.) Animal protein is more suitable than vegetable protein in supplying nitrogen for milk and maintenance of nitrogen balance. The protein derived from nuts when fed with other vegetable protein is suitable for supplying milk protein and for maintaining nitrogen equilibrium. A diet composed exclusively of cereals, fruits and vegetables does not supply sufficient protein for elaborating milk protein and causes a severe drain on the tissue of the mother. Of the various forms of animal protein that which is derived from cow's milk seems particularly suitable for the production of human milk protein as well as for the preservation of maternal tissue.

5. **Congenital Skin Defects.**—In Abt's case there was a defective skin area over each knee. The two areas were about 1 by 1¼ inches in size, almost identical in size and shape. The skin around the edges was brown and puckered, presenting the appearance of ulcers with irregular edges. The base was beefy red and moist. A few small foci on this red ulcerated surface showed a yellow exudate. A whitish scar seemed to cross the ulcerated area, appearing like a connective tissue band, which indicated the beginning of cicatrization. From week to week the ulcers gradually covered over so that after five or six weeks the denuded red areas were replaced by shiny white patches somewhat lighter in color than the surrounding skin. The healing process was complete and the baby appeared normal in every respect.

American Journal of Physiology, Baltimore

August, XLI, No. 1

6 Bio-Assay of Veratrum Viride. J. D. Pilcher, Omaha, Neb.—p. 1.
7 *Production in Dogs of Pathologic Condition Which Closely Resembles Human Pellagra. R. H. Chittenden and F. P. Underhill, New Haven, Conn.—p. 13.
8 Contraction of Smooth Muscle Cells in Tissue Cultures. M. R. Lewis and W. H. Lewis.—p. 67.
9 *Effect of Emotions on Catalase Content of Liver. W. E. Burge and E. L. Burge.—p. 75.
10 Electrodes Used in Electrocardiography. H. E. B. Pardee.—p. 80.
11 Response of Respiratory Mechanism to Rapid Changes in Reaction of Blood. J. P. Peters, Jr., New York.—p. 84.

7. **Production of Pellagra-Like Conditions in Dogs.**—Chit-nden and Underhill found that dogs fed on a diet consisting f boiled (dried) peas, cracker meal, cotton seed oil or lard, apidly develop symptoms indicating abnormal nutrition. his condition eventually terminates in death. Previous to e development of the pathologic manifestations the dogs re usually in nitrogen balance and exhibit excellent food tilization. The nitrogen partition of the urine is normal hen compared to that of animals maintained on the same vel of nitrogen intake. The pathologic symptoms at times an be made to disappear and the normal conditions of nutri-ve rhythm can be reestablished by addition of meat to the ietary. In the production of the symptoms it is immaterial hether the transition from a diet containing meat to one of getable origin is sudden or gradual. The final outcome is e same in both cases. The intake of a large quantity of as is less detrimental than smaller amounts. In the develop-ent of the pathologic condition, the level of nitrogen intake such plays little or no role. The typical symptoms may induced in dogs, but with much greater difficulty, when a et containing meat, cracker meal and lard is fed in appro-iate quantities. For the production of the diseased condi-on the meat intake must be reduced to a certain undefined inimum. Under these circumstances less than 50 per cent dogs exhibit pathologic symptoms and these may appear periods of two to eight months. From the facts enumerated e conclusion seems tenable that the abnormal state may be ferred to a deficiency of some essential dietary constituent constituents, presumably belonging to the group of hitherto recognized but essential components of an adequate diet.

9. **Effect of Emotions on Catalase Content of Liver.**—Evidence is presented by the Burges to show that the fighting emotions, and probably exercise, increase greatly the catalase content of the liver, and that this catalase is given off to the blood and is carried to the tissues to be used presumably in producing increased oxidation.

American Journal of Public Health, Boston

July, VI, No. 7

12 Tuberculosis in France. H. Biggs, New York.—p. 606.
13 Observations and Experiments on Dishwashing. W. A. Manheimer and T. Ybanez, New York.—p. 614.
14 Enforcement of Registration of Births and Deaths in Metropolitan Area.—History, Methods, Results and Checks. W. H. Guilfoy, New York.—p. 619.
15 Use of Vital Statistics in Epidemiologic Studies. A. W. Freeman.—p. [illegible]
16 Modern Hygiene of Typhus Fever. Its Application at Port of New York. J. K. Hiel.—p. 628.
17 Present Status of and Necessity for Mouth Hygiene. S. J. Rauh.—p. 631.
18 Monthly Schedule for Health Officers. H. B. Wood, Charleston, W. Va.—p. 637.
19 Sanitary Engineering in Connection with Military Service. E. Tompkins, Los Angeles.—p. 638.

American Journal of Syphilis, St. Louis

July, I, No. 3

20 Treatment of General Paresis. Report of Fifty-Five Cases. H. S. Ogilvie, New York.—p. 509.
21 Response in Treatment of Syphilis of Central Nervous System. H. F. Swift, New York.—p. 524.
22 Complement Fixation in Syphilis. L. Thompson, Hot Springs, Ark.—p. 555.
23 Six Cases of Aortic Aneurysms and Dilatations. P. G. Woolley, Cincinnati.—p. 582.
24 Serologic Examination of Over Two Hundred Children from Open Air Schools of St. Louis. C. D. Johnson, St. Louis.—p. 606.
25 Value of Complete Examination of Ear in Syphilis. J. W. Downey, Jr., Baltimore.—p. 616.
26 Presenting Symptoms in Three Hundred Consecutive Cases of Syphilis. J. H. Lafferty and S. R. Thompson, Charlotte, N. C.—p. 624.
27 Provocative Wassermann Test in Clinical Diagnosis of Syphilis. J. H. Stokes and P. A. O'Leary, Rochester, Minn.—p. 629.
28 Cases of Hypertrophic Cirrhosis of Liver. P. G. Woolley, Cincinnati.—p. 649.
29 Luetin Reaction in Cardiovascular-Renal Diseases. Report of Thirty-Three Cases. D. Fulton and R. Cummings, Los Angeles.—p. 663.
30 Treatment of Syphilis with Galyl. L. Thompson, Hot Springs, Ark.—p. 665.

21. **Treatment of Syphilis of Central Nervous System.**—Swift calls attention to the fact that before undertaking the treatment of a patient with any form of cerebrospinal syphilis, it is important to determine what symptoms are due to inflammation or exudation and what are due to degeneration of tracts or cortex. It is also advisable to determine the intensity of the irritative condition as indicated by the cerebrospinal fluid. In general the lesions due to inflammation or exudation are much improved or eliminated by the general treatment of the patient. Those due to degeneration are little if any, affected. Treatment should be directed not only toward the elimination of symptoms but toward the elimination of the underlying process, namely, syphilis. In most patients with early meningitis, and in those with what was formerly termed tertiary syphilis of the central nervous system, the symptoms due to exudation respond in a satisfactory manner to the general administration of salvarsan, mercury and potassium iodid. Occasionally a case is met in which intraspinal treatment seems to be necessary in order to eradicate completely the central nervous lesions. Likewise in tabes dorsalis many cases respond satisfactorily to the general administration of salvarsan and mercury. On the other hand, in a considerable number of tabetics, the addition of intraspinal injections of serum to intravenous treatment with salvarsan seems to hasten the elimination of abnormal elements in the cerebrospinal fluid and lead to a permanent arrest of the degeneration. It is advisable to continue the treatment of patients suffering from cerebrospinal syphilis or tabes dorsalis until the cerebrospinal fluid is normal and remains so. A possible exception may be made in reference to excess globulin, for an increased globulin is not infre-

quently found years after all other abnormal elements have disappeared from the fluid

In paralytic dementia, while much benefit may be expected in increasing the number and length of remissions, the ultimate hope for recovery is slight When a paretic type of gold curve is found in the fluid of patients in whom the clinical diagnosis of paresis is not justified, the most intensive form of treatment should be instituted from the beginning It is probable that the finding of this paretic type of gold curve often helps us to make a diagnosis of paresis before clinical symptoms of the disease are present. This early diagnosis with consequent early treatment may be of extreme importance in preventing the development of the outspoken condition Finally, treatment must be individualized, given in courses, and the condition of the fluid determined at the end of each course and at the beginning of the subsequent course In this way, the indication for kind of treatment, as well as the manner of response, is much more certainly determined than if one depends on clinical symptoms and objective findings alone

22 **Complement Fixation in Syphilis**—The patient's serum is used in the fresh, noninactivated state in quantities sufficient to insure the presence of sufficient syphilitic antibodies to bind complement when such antibodies are present at all, the complement is derived from the patient's serum and is accurately titrated, the amboceptor is the serum of rabbits immunized against human red blood cells, the antigen is the acetone insoluble lipoids of Noguchi and Bronfenbrenner, while the corpuscles are thoroughly washed human erythrocytes from any convenient source, usually from one of the patients whose serum is being tested

Arkansas Medical Society Journal, Little Rock

July, XIV, No 2

31 Fibroid Uterus in Young, Report of Cases E L Beck, Texarkana—p 34
32 Hematoma of Skull H H Rightor, Helena—p 35
33 Paraffin Treatment for Burns N Mumey, Little Rock—p 36
34 Fracture of Left Patella J M Lemons, Pine Bluff—p 38

Boston Medical and Surgical Journal

August 2, CLXXVII, No 5

35 *When Is Diagnosis of Tuberculosis Without Positive Sputum Justified? D R Lyman, Wallingford, Conn—p 135
36 *Diagnosis of Tuberculosis in Children H D Chadwick and R Morgan, Westfield, Mass—p 138
37 What Should Constitute Reportable Tuberculosis F G Curtis, Newton, Mass—p 141
38 Definitions and Diagnostic Standards in Diagnosis of Pulmonary Tuberculosis in Adults J B Hawes, Boston—p 145
39 Clinical Data of Gallbladder Disease R W French, Fall River, Mass—p 151
40 Occupational Diseases in Massachusetts T F Harrington, Boston—p 153

35 **Diagnosis of Tuberculosis Without Positive Sputum**—The records of 1,638 cases of tuberculosis discharged from Gaylord Farm in the past twelve years show 1,076 in which the sputum was positive and 562 with no bacilli The 562 negative cases were divided as follows incipient, 244, moderately advanced, 297, far advanced, 21, more than half showing well-developed lung signs In fifty-one cases there was tuberculosis elsewhere, eighteen had pleurisy with effusion, 126 had hemorrhage—and these included only frank hemorrhage, and not blood-streaked sputum—ninety-seven gave positive tuberculin reactions to doses ranging from 1 to 7 mg of old tuberculin given subcutaneously, and seventy-six died from tuberculosis after discharge The study of the records of those having positive findings, Lyman points out, emphasizes again the futility of depending on sputum for diagnosis In 213 of these 1,076 cases with positive sputum, the sputum was negative occasionally, in 56 it was negative as often as positive, in 42 negative twice for each positive finding, in 63 negative three times for each positive finding, in 70 negative five times, and in 39 negative ten times for each positive finding Thus of 1,076 positive cases, in 483 the sputum at times would have failed to support the clinical diagnosis, and of 1,638 cases, in only 593 was the sputum positive at all examinations Lyman says that in making a diagnosis of pulmonary tuberculosis in the face of negative sputum findings the data necessary are first, the history of the case, second, the symptoms presented, and, third, the physical signs

36 **Diagnosis of Tuberculosis in Children**—Summarizing the essentials for a minimum standard necessary in the diagnosis of tuberculosis in children, Chadwick and Morgan emphasize the importance of symptoms indicating tuberculin absorption, namely weakness, undue fatigue, fever, poor appetite, failure to gain, or loss of weight, and nervous irritability The local symptoms are cough, hoarseness and occasionally streaked sputum The usual physical signs are dulness in the interscapular region radiating into the apices at the back, frequently not elicited in front There may or may not be changes in the respiratory sounds Râles may or may not be present Symptoms both constitutional and local, together with a history of exposure, are to be given greater weight in making a diagnosis of active tuberculosis than the presence or absence of physical signs Percussion is more important than auscultation A thickened area in the lung or region of the bronchial glands does not in itself mean active tuberculosis It may be a healed lesion that needs no treatment. Such thickening may also be caused by other diseases than tuberculosis The child showing constitutional symptoms, even without local signs of disease in the chest, should be considered suspicious, kept under careful observation and hygienic treatment instituted in the home The case with signs in the chest, without constitutional symptoms, indicates an old inactive infection that needs no treatment Individualization and common sense must be used to weigh all the factors in the case, and, with experience as a guide, few errors in diagnosis will be made

Canadian Medical Association Journal, Toronto

July, VII, No 7

41 Canadian Medical Association A D Blackader, Montreal—p 577
42 Slight Variations from Normal Structure and Function, and Their Clinical Significance. T C Janeway, Baltimore—p 589
43 Corpus Callosum Morphologic and Clinical Study J Cameron, Halifax—p 609
44 Pyelitis J R Fraser, Montreal—p 617
45 Classification of Cases of So Called Shell Shock. H P Wrigl—p 629
46 Fragilitas Ossium, Report of Case A Goldbloom, Montreal—p 636
47 Traumatic Extraperitoneal Rupture of Bladder with Fracture Pelvis M O Klotz, Ottawa—p 641

Journal of Experimental Medicine, Baltimore

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48 *Studies in Glomerulonephritis Quantitative Study of Reactio of Kidney to Diphtheria Toxin H K. Faber, San Francisco—p 139
49 Id Form of Acute Glomerulonephritis Produced with Diphtheri Toxin and Bacillus Coli H K Faber, San Francisco—p 153
50 *Experimental Studies on Lymphocytes Action of Immune Serum on Lymphocytes and Small Thymus Cells A M Pappenheimer New York—p 163
51 *Mechanism of Urea Retention in Nephritis F C McLean, New York—p 181
52 Experiments on Causation and Amelioration of Epinephrin Pulmonary Edema J Auer and F L Gates, New York—p 201
53 *Effects of Experimental Plethora on Blood Production O H Robertson, New York—p 221
54 *Experimental Study of Organization in Lobar Pneumonia B S Kline, New York—p 239
55 Growth of Ovarian Follicle of Guinea Pig Under Normal an Pathologic Conditions L S N Walsh, St Louis—p 245
56 *Relation of Apical Tuberculosis of Adults to Focal Tuberculosi of Children E L Opie, St. Louis—p 263
57 Cicatrization of Wounds Influence on Healing of Wounds o Variations in Osmotic Tension of Dressing A Carrel, P L du Noüy and A Carrel, France—p 279

48 **Studies in Glomerulonephritis**—Faber found that diphtheria toxin of known strength, injected intravenously int rabbits in single doses, produces lesions which are first evident in the endothelium of the tufts, and possibly in the intertubular capillaries Evidence is presented to show tha epithelial damage in the tufts and especially in the tubules i secondary to the vascular injury The severity of the lesion was roughly proportional to the amount of toxin injected I is suggested that the localization of lesions in the tufts is du to the concentration of toxin in the blood that follows the los

of water at this point It is further suggested that this inference may be extended to explain the pathogenesis of the so-called intracapillary form of glomerulonephritis

51 **Action of Immune Serum on Lymphocytes and Thymus Cells**—Pappenheimer's experiments indicate that the lymphotoxic and agglutinative factors are to a considerable degree distinct from the hemolytic and hemagglutinative ones since they can be separated from one another by absorption Evidence is presented that the small thymus cells are biologically related to if not identical with the lymphocytes derived from lymph glands

52 **Urea Retention in Nephritis**—Urea retention in the sense of a relatively increased concentration in the blood McLean believes is the result of increased resistance to the excretion of urea through the kidneys The relatively increased concentration of urea in the blood overcomes the increased resistance to excretion and the organism is thereby maintained in nitrogenous equilibrium The laws formulated by Ambard for the excretion of urea apply in the condition urea retention under a widely varying range of conditions as to nitrogen intake and excretion The numerical value of Ambard's constant changes in urea retention but the relation of the variable factors to one another remains otherwise unchanged In certain individuals with otherwise normal kidneys in regard to urea excretion an unusual degree of constancy to which McLean applies the term fixation has been found in the numerical results obtained by the application of Ambard's laws These individuals are regarded as the result of this study as probably abnormal but the pathologic significance of the fixation has not been determined

53 **Experimental Plethora and Blood Production**—The finding by Robertson that the activity of the bone marrow can be depressed by the introduction of a large quantity of blood into the circulation accounts for the diminished bone marrow activity which sometimes occurs after transfusion in pernicious anemia In such cases there is a marked drop in the number of reticulated cells and other evidence of bone marrow depression the patient shows no benefit from transfusion or may grow rapidly worse The cause of this depression is best explained on the basis that in severe instances of disease where exhaustion of the bone marrow is imminent stimulus of the anemia is only just sufficient to keep the marrow functioning A sudden lowering of this stimulus is brought about by the introduction of a large quantity of blood into the circulation and the result is a fall in the activity of the bone marrow It follows from this that in pernicious anemia with a feebly reacting bone marrow as indicated by the number of reticulated red cells small transfusions are preferable to large ones

54 **Organization in Lobar Pneumonia**—Experiments reported by Kline give evidence that in unresolved lobar pneumonia the persistence of the exudate followed by organization depends on the presence of serum in the exudate

56 **Tuberculosis of Adults and of Children**—The following observations by Opie indicate that apical tuberculosis of adults is not the result of infantile tuberculosis but is caused by subsequent infection (*a*) Apical tuberculosis does not have its highest incidence in accordance with common belief, in early adult life when focal infections acquired in childhood are relatively fresh and active but is more common in later life when the focal lesions of childhood have in most instances completely healed It is noteworthy that most of these apical lesions of later life pursue a chronic course and are discovered at necropsy in individuals who have died from other causes, (*b*) the well characterized lesions of tuberculosis acquired in childhood and found in adults with apical lesions are almost invariably calcified and healed The apical lesion is in most instances relatively fresh and caseous whereas the focal pulmonary lesion and associated lesions regional lymphatic nodes exhibit no evidence of activity, (*c*) in a large proportion of instances of associated focal and apical tuberculosis the focal lesion is in one lung whereas the apical lesion is limited to the opposite apex This relation affords no support to the view that tuberculous lesions may be transmitted to the apex by way of the lymphatics

Journal of Infectious Diseases, Chicago

August XXI No 2

58 *Epidemiology of Pellagra in Nashville Tennessee J W Jobling, W F Petersen B C Tucker and I C Costen, Nashville Tenn —p 109
59 Development of Antibodies for Bacillus Typhi Exanthematici in Typhus Fever Contacts C Baehr New York —p 132
60 Fecal Examinations of Regiment Infected with Bacillus Paratyphosus A with Special Reference to Normal Carriers C Krumwiede Jr New York —p 141
61 Isolation of Typhoid Bacilli from Urine Kan Ichiro Morishima and O Teague New York —p 145
62 Results of Blood Cultures in Rheumatoid Arthritis V H Moon and S R Edwards Indianapolis —p 154
63 Correlations in Colon Aerogenes Group L V Burton and L F Rettger New Haven Conn —p 162
64 *Tuberculosis of Lymph Nodes Frequency Origin and Relation to Other Tuberculous Lesions Especially Pulmonary Tuberculosis F Harbitz Christiania Norway —p 196
65 Comparisons of Rate of Gas Production by Certain Bacteria in Raw and in Pasteurized Milk P W Allen Urbana —p 219

58 **Epidemiology of Pellagra**—As a result of the surveys carried on by Jobling and Petersen during the past two years in the city of Nashville some fairly well established facts are presented Considering the relation of the diet to pellagra, two factors stand out which are contradictory On the one hand a definite number of cases develop in individuals partaking of a diet as varied and as wholesome as could be demanded by any advocate of the dietary theory, and cases of pellagra have developed in breast-fed infants of nonpellagrous mothers On the other hand at least half of the cases develop in persons living on a ration low in protein, high in carbohydrates and monotonous in character Admittedly too the pellagrous condition is favorably influenced by a change in diet

59 **Antibodies in Typhus Fever Contacts**—Twenty persons who did not have typhus fever clinically were examined as to blood antibodies Specific antibodies in high titer were found Every one of these twenty individuals had recently been in intimate contact with typhus fever They were either physicians nurses and hospital attendants who were handling typhus fever patients or they were friends or members of families in which typhus fever had recently occurred Of these twenty typhus contacts three after their exposure to infection had had vague general symptoms indisguishable from an influenza All the others had been well Baehr holds that the observation that individuals after exposure to typhus fever may fail to develop the disease and yet may react with the production of specific antibodies against *Bacillus typhi-exanthematici* is incontrovertible evidence as to the etiologic significance of the *Bacillus typhi-exanthematici*

62 **Blood Cultures in Rheumatoid Arthritis**—Forty cases of acute arthritis and 83 cases of chronic arthritis were examined bacteriologically by Moon and Edwards Nonhemolytic streptococci were found in 13 of the acute cases, hemolytic streptococci in one case, *Bacillus mucosus-capsulatus* in 2 and a diphtheroid bacillus in 2, staphylococcus aureus in one case 21 were negative In the chronic cases nonhemolytic streptococci were found in 18 cases, *Bacillus mucosus-capsulatus* in 3, diphtheroid bacilli in 3, unidentified organisms in 1 case, 58 were negative The probable source of infection was not always determined but, tonsils and teeth stand out prominently The results of autogenous vaccine treatment when consistently carried out were for the most part gratifying especially in the chronic cases, though there were cases in which little or no improvement was evident In making a statement regarding results of vaccine treatment the authors have not lost sight of the tendency of infection to spontaneous improvement or recovery nor of the fact that in most of these cases improved hygienic conditions, rest and tonics were also factors Little permanent improvement is to be secured in chronic progressive arthritis by improved hygienic conditions rest and tonics alone, yet a number of cases showed a marked permanent improvement when these measures were combined with autogenous vaccines

64 **Tuberculosis of Lymph Nodes**—Harbitz's observations are based on 2 906 necropsies of which 2 489 were of adults, that is, persons over 15 and 417 children, that is, persons

under 15 Of these cases, 431, 14 8 per cent, died of tuberculosis, including advanced tuberculosis in persons dead from other causes, the deaths numbered 501, that is, 17 per cent Of the adults, 351, 14 per cent., died of tuberculosis, of the children, 80, or 19 per cent. In 203 cases considerable tuberculosis of the lymph nodes was found, that is, in 7 per cent., 127 cases, 5 per cent, being in adults, and 76, 18 2 per cent, in children Tuberculosis of the bronchial lymph nodes 57 cases All were fatal except 2 In most of the cases death resulted from a secondary miliary tuberculosis or tuberculous meningitis Primary extensive tuberculosis in the cervical lymph nodes 10 cases, all in adults Eight died of tuberculosis Old primary extensive tuberculosis in abdominal lymph nodes 9 cases, 3 dying of tuberculosis Extensive old chronic lymph node tuberculosis in the neck and chest 40 cases, of which 3 are doubtful Of the 23 who died from tuberculosis, 9 died of a secondary lung tuberculosis, 7 of miliary tuberculosis and tuberculous meningitis, 2 of tuberculosis of the serous membranes, 1 child of spondylitis, 1 adult of intestinal tuberculosis, 2 adults of urogenital tuberculosis, and 1 of secondary amyloid degeneration Primary contemporaneous old tuberculosis in cervical and abdominal lymph nodes 1 was fatal Extensive inveterate tuberculosis of the thoracic and abdominal lymph nodes 22 cases, 19 fatal The cause of death was miliary tuberculosis (2), primary (?) intestinal tuberculosis (4), urogenital tuberculosis (3); tuberculosis in the suprarenals with Addison's disease (3), tuberculosis of serous membranes (1), secondary (?) pulmonary tuberculosis (3), tuberculosis in the bone, pericarditic pseudocirrhosis in a boy of 13, and a peculiar symptom complex with fever and anemia General lymph node tuberculosis 61 cases In all these cases with one exception tuberculosis was the cause of death

The lymph nodes in the neck, in the thorax, and in the abdomen were markedly and extensively affected Occasionally, there was also a similar process in the axillary and inguinal nodes Frequently there was a descending process in the neck, most marked above, and reaching down into the supraclavicular spaces, next in the thorax along the trachea, least marked above, down to the bifurcation and pulmonary hilus where the masses usually were largest, and then along the bronchi Apparently, there was a continuous series of infected lymph nodes, but the extent decreases downward in the neck and upward along the trachea In the abdomen there was generally a more isolated tuberculosis, either in the mesenteric nodes only or in the retroperitoneal nodes, sometimes in high degree and in the upper part of the abdomen, along the aorta, the celiac axis, or in the hilus of the liver and spleen Consequently, in general, it does not appear that the coarser anatomic conditions point to a continued and continuous spread along the lymph vessels from one point and from one place to another

Journal of Nervous and Mental Diseases, Lancaster, Pa

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66 Disease and Symptoms Plea for Wider Generalization E W Taylor —p 1
67 *Effect on Papilledema of Removal of Small Quantities of Cerebrospinal Fluid by Lumbar Puncture W G Spiller and G E de Schweinitz.—p 10
68 *Virilism Forme Fruste H K. Marks, New York City —p 17
69 Mechanism Producing Hysterical Abdominal Distention W L Lillie, Ann Arbor, Mich —p 35
70 *Carcinoma of Spine—Case of Cauda Equina Disease Following Thyroid Metastasis A Skversky, New York City —p 40

67 **Removal of Cerebrospinal Fluid**—In three cases observed by Spiller and de Schweinitz removal of a few cubic centimeters of cerebrospinal fluid had a remarkable effect on swelling of the optic nerves In the first patient, a decrease of 1 diopter was noticed after each lumbar puncture Two of these cases from a preliminary examination strongly suggested brain tumor, but after a more careful study the diagnosis of encephalitis was made in one case and of pseudotumor from intoxication or infection in the other

68 **Virilism.**—On the basis of twenty-two observations, the proposition is made by Marks that a type of virilism exists which corresponds essentially to the clinical picture of the *virilisme surrenal* of Gallais, but which is attenuated and compatible with life, in a word, a virilism, *forme fruste* Although postmortem support is lacking, the clinical analogies are striking and constant That the interrenal tissue plays a rôle, probably the most important role in the development of the syndrome is more than likely, but the remaining endocrine glands cannot be left out of account, notably the pituitary, pineal and ovaries The primary disturbance would seem to lie in the resultant of a balance of power between the cortical tissue and the ovaries On the hypothesis proposed by Marks, the ovaries would have the function of guarding and conserving the female characters, while at the same time inhibiting the development of male characters If for any reason, pathologic or physiologic, temporary or permanent, this balance of power falls to the interrenal tissue, then male characteristics tend to appear Granted the existence of virilism, *forme fruste*, it is apparent that an interesting field of inquiry is opened up from a sociologic and eugenic point of view, likewise questions that touch on the "infantile trauma" of Freud in the origin of homosexual traits

70 **Carcinoma of Spine**—Skversky's patient, male, aged 52, complained of pain in both hips, radiating down the legs, so that he was unable to walk for any distance. The illness dated back two years with cutting pains in the left lower limb, commencing above the pelvis, and radiating down the inner side of the ankle About six months later, he began to experience similar pains in the right lower limb The pain, which was very severe, was not constant nor definitely localizable, but mostly in his legs and ankles, never in his feet While in bed he found comfort only when lying on either side, and turning over was accompanied by sharp pains in the back of the pelvis There was no pain on urination o defecation He was able to walk slowly and guardedly, wit the aid of a cane, but while on his feet appeared to be suffer ing from pain Examination of the neck did not reveal an thyroid enlargement, no abnormal masses were felt, nor wi any apparent enlargement of the regional lymphatics present Examination of the spine did not reveal any deformitie rigidity, tender areas or alteration in consistency, in fact, n pathology was found In the absence of objective organ features, the case was, for the time being, considered to t probably of a functional nature The roentgenologist report slight evidence of a defect in the outlines of the left border the body of the fourth lumbar vertebra, but added that th was probably an artefact and of no significance Thre months later he reported bone defect involving the left hal of the body of the fourth lumbar vertebra, also small con tiguous portions of the third and fifth vertebrae T patient began to show evidence of rapid loss of weight, ar a peculiar yellowish-brown cachexia Death occurred insi of two weeks The necropsy disclosed an adenocarcinoma the thyroid with metastases in the lower portion of the thi and upper portion of the fifth vertebrae, including the inte vertebral disks, encroaching on the spinal canal, althoug not penetrating the meninges It proved to be thyro adenoma, replacing atrophic bone, with no evidence of ne bone formation The primary seat of the neoplasm was n recognized for obvious reasons, but the prostate at one tim felt suspiciously enlarged, and although toward the end i did not suggest malignancy, it was considered as the probabl primary site of the disease At no time during the clinica course was there anything to suggest thyroid disease.

Nebraska State Medical Journal, Norfolk

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71 Arteriosclerosis and Hypertensions from Standpoint of Gener Practitioner J C Waddell, Pawnee City —p 347
72 Icterus A Sachs, Omaha —p 351
73 Chronic Intestinal Stasis, Clinically and Surgically A E Watso Grand Island —p 355

New Orleans Medical and Surgical Journal

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74 Appendicitis Complicating Pregnancy A. P Heineck, Chicag —p 113
75 Practical Methods of Preventing Diseases in Communities wi Results Accomplished in Shreveport G C Chandler, Shrev port —p 127
76 Treatment of Pneumonia in Early Life L. R DeBuys, N Orleans —p 137

77 Re[illegible] of Appendix in Al[illegible] H B Ge[illegible]ner New Orleans—p [illegible]
78 B[illegible] Disease: Report of Apparently Cured Case D D W[illegible] Lecompte—p 1[illegible]
79 [illegible] Aid in Care of Pneumonia J C Cole New Orleans—p 165
80 Importance of Early Diagnosis in Mental Disorders R M Van W[illegible] New Orleans—p 170
81 Extreme [illegible] Relieved by Bilateral Resection of [illegible] H B Gessner New Orleans—p 17[illegible]

Ohio State Medical Journal, Columbus

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84 Case of Small Round Cell Sarcoma of Dura of Spinal Cord C L [illegible] Cincinnati—p 54[illegible]
85 Pr[illegible] Public Health J K McDonald Columbus—p [illegible]

Public Health Journal, Toronto

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3 Recognition and Treatment of Some Conditions of [illegible] J W [illegible] Providence—p 167
4 Study of Internal Secretion: Report of Five Cases A H P[illegible] Providence—p 170
5 Perforation of Duodenum Due to Retroperitoneal [illegible] C S Christie and H S Perrin Providence—p 1[illegible]
6 Case of Malignant [illegible] L [illegible] Providence—p 176

South Carolina Medical Association Journal, Greenville

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[illegible] Medical Examination of School Children of City of Florence S C M R Mobley Florence—p [illegible]

uthwest Journal of Medicine and Surgery, El Reno, Okla

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Surgery, Gynecology and Obstetrics, Chicago

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*Operative Treatment of Inaccessible Vesicovaginal Fistulas G G Ward, Jr New York—p 126
*Surgical Methods of Dealing with Pelvic Infections. T S Cullen, Baltimore—p 134
Treatment of Cystocele and Uterine Prolapse T J Watkins Chicago—p 147
*Hemolytic Jaundice Review of Seventeen Cases. H Z Giffin, Rochester Minn—p 152
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*Webs and Pouches of Esophagus Their Diagnosis and Treatment H P Mosher, Boston—p 175
*Surgical Treatment of Banti's Disease Report of Three Cases C D Lockwood, Pasadena Calif—p 188
Gangrenous Cholecystitis Report of Case Due to Gas Bacillus G G Cottam Sioux Falls S D—p 192
Abuse of Cesarean Section J W Williams, Baltimore—p 194
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Use of Desiccated Placenta E Cary Chicago—p 206
Harelip W A Bryan Nashville, Tenn—p 209
Suspension in Bronchoscopy and Esophagoscopy R C Lynch, New Orleans—p 213
Radical Treatment of Intestinal Obstruction and Gangrene of Intestine, Report of Two Cases H Shoemaker, Los Angeles.—p 217

04 **Treatment of Inaccessible Vesicovaginal Fistulas**—following points in the closure of inaccessible vesicovaginal fistulas by the vaginal route are emphasized by Ward. Schuchardt's incision is the most effective means by obtaining free access to the vaginal vault for operative procedures in difficult cases. Free mobilization of the bladder is an essential requisite to the successful closure of inaccessible vesicovaginal fistulas. Displacement of the bladder injury downward within reach by means of a sound in the bladder used as a lever and counterpoint is a decided aid. The sutures in the bladder and vaginal walls should be placed in such a manner that the lines of incision are not superimposed.

105 **Surgical Treatment of Pelvic Infections**—Emphasis is laid by Cullen on the following. When an appendix abscess is opened the appendix can practically always be removed at the same time provided the abscess is well walled off with gauze before an attempt is made to open it. In removing a large pus tube that is firmly adherent to the pelvic floor, it is better to begin by excising a wedge of the uterine cornu and gradually freeing the mesosalpinx. The tube can then be lifted up as a straight rod and carefully walled-off on all sides before it is shelled off from the pelvic floor. Soiling is reduced to a minimum. Pelvic drains that emerge from the vagina should if possible be so placed that they do not come in contact with the small bowel. Vaginal drains laid in the pelvis during an abdominal operation should not be removed as a rule before the fourth or fifth day on account of the danger of pulling down an adherent loop of small bowel. No case of pelvic abscess should be irrigated. There is danger of rupture of the abscess wall and of the escape of infectious fluid into the abdomen which will set up a general peritonitis. Postpuerperal pelvic infections are found as a rule in one or both broad ligaments. Those in the broad ligament can be most satisfactorily opened extraperitoneally through a gridiron incision just above Poupart's ligament. Such accumulations should rarely if ever, be opened through the vaginal vault.

107 **Hemolytic Jaundice**—Seventeen cases of hemolytic jaundice of which four are probably of the acquired type are reviewed by Giffin. In twelve splenectomy was performed. An increased fragility of the erythrocytes in the peripheral circulation was a constant finding in all the fifteen patients tested. This increased fragility was found to persist at varying periods after splenectomy in seven of eight patients tested. The values for urobilin and urobilinogen in the duodenal contents were high in six patients in whom they were estimated. There was an appreciable fall in these values following splenectomy. In seven (58 per cent) of twelve splenectomized patients gallstones were present. The removal of gallstones has not cured hemolytic jaundice. On the other hand patients with hemolytic jaundice who were splenectomized have been cured of their jaundice and anemia though retaining the gallstones. Of the twelve patients on whom splenectomy was performed, ten are living, nine are in excellent health without jaundice or anemia. There was one operative death. One patient died four months after operation, another patient with a severe form of the acquired type of the disease was in excellent health for eighteen months, had a relapse after two years and is again in fairly good health after two and one-half years following two transfusions. Four patients have been in excellent health for fourteen months, fifteen months, twenty-three months, and five and one-half years respectively.

110 **Webs and Pouches of Esophagus**—Mosher records an original method of treating esophageal pouches by cutting the common wall between the pouch and the esophagus. It has worked well in three cases.

111 **Surgical Treatment of Banti's Disease**—Lockwood says that experience thus far in splenectomy for Banti's disease would seem to justify the conclusion that overfunctioning of the spleen, whether of toxic or bacterial origin, is the cause of the anemia and liver changes so characteristic of the disease.

Vermont Medicine, Rutland

July II, No 7

119 Infantile Paralysis C S Caverly, Rutland—p 16[illegible]
120 Diagnosis and Medical Care of Mastoiditis G. [illegible] Rutland—p 171

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1 Plea for Metric System F G Griffiths—p 501
2 War Surgery at Front. C MacLaurin—p 503
3 Control of Hemorrhage in Operation for Repair of Old Lacerations of Cervix Uteri J F Mackenzie—p 505
4 Generalized Scleroderma with Sclerodactylia S Jamieson—p 505

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5 Experiences in Mesopotamia R M Allan—p 523
6 Fractures at Ankle Joint H R Sear—p 526
7 Cancer of Cervix Uteri Following Subtotal Hysterectomy R Worrall—p 530

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8 Dr Eric Pritchard's Theory and Treatment of Rickets W F Litchfield—p 547
9 *Case of Anemia of Pernicious Type in Infant. B Bradley—p 549
10 *Left Sided Cecum and Ascending Colon with Absence of Transverse Colon C E Corlette—p 551

9 **Anemia of Pernicious Type in Infant**—Bradley's patient was 11½ months of age When the child was admitted it was a pale lemon color There was puffiness of the face and swelling around the ankles The abdomen was soft The spleen was palpable an inch below the costal margin anteriorly, and the lower edge of the liver was felt ½ to 1 inch below the costal margin, both in the midline and to the right side A blood count showed red cells, 1,600,000, hemoglobin, 30 per cent, leukocytes, 14,000 There was marked poikilocytosis, anisocytosis and polychromatophilia. Many microcytes and macrocytes were present There were considerable numbers of nucleated cells, some of which were megaloblasts Differential count polymorphonuclear cells, 37 per cent, mononuclear cells, 51 per cent, eosinophil cells, 3 per cent, large mononuclear cells, 4 per cent, transitional cells, 5 per cent The child was given liquor arsenicalis Six months later the blood count showed red cells (dupl), 4,200,000, hemoglobin, 80 per cent. and leukocytes, 7,000 The red cells appeared normal No nucleated cells were noted (Giemsa) polymorphonuclear cells, 45 per cent. and mononuclear cells, 55 per cent The child is still under observation

10 **Left-Sided Cecum and Ascending Colon with Absence of Transverse Colon**—A man, 30 years of age, had for years complained of various gastric symptoms and of constipation The chief gastric symptom was flatulency after meals, but at times he had pain and excessive discomfort, relieved by washing out the stomach The Roentgen ray disclosed a peculiar abnormality of the intestine The cecum and ascending colon were to the left of the midline and ascended almost vertically to the splenic flexure, there being an absence of a good deal of colon

Bulletin de l'Académie de Médecine, Paris

June 26, LXXVII No 26, pp 797 826

11 Regulation of Sale of Proprietaries Committee report Discussion—p 798 To be continued
12 * 'Trench Albuminuria" (Nephrites de guerre) J Teissier—p 806
13 *Proportion between Male and Female Infants Born (De la masculinité) F Maurel—p 811
14 Reeducation for War Deafness A Castex—p 817
15 Operative Treatment of Shell Wounds of the Lung P Duval—p 819
16 Free School Clinics Needed to Supplement the Work of the Medical Inspector F Bussiere—p 821
17 Food Value of Barley (L'orge dans le pain de guerre) E Weill and G Mouriquand—p 824

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18 The Causes of Depopulation F Jayle—p 3
19 *Mumps Meningitis E de Massary, Tockmann and Luce—p 6
20 *Production of Urea in Tissues in Course of Necrosis, and Consecutive Azoturia P Ameuille—p 8
21 Simplification of Technic for Transfusion of Blood (La transfusion sanguine clinique Technique hemosaline biveineuse mensuratrice sans anastomose) G Rosenthal—p 10

12 **Trench Albuminuria**—Teissier says that there is nothing specific about the kidney troubles of the men in the trenches except the high nitrogen content of the blood, from 0 7 to 1 35 gm, while the content in the urine is below normal, although the permeability of the kidneys seems unimpaired The rarity of serious uremia is thus explained The whol trouble seems to be from accumulation of waste products This may entail a reflex spasmodic contraction of the bundle of His This assumption seems to be the only plausible explanation of the peculiar characteristics of the first heart sound in these cases None has ever proved fatal to date, and consequently anatomic proof is lacking

13 **Excess of Boy Babies**—Maurel compares the statistics for the birth rate of male and female infants in variou European countries since 1865 The excess of boys is fairl constant at the same figure in most of the countries, but i France it has shown a gradual decline from 106-4 to 104 since 1806 The age of the parents seems to have an influ ence, the father predominantly, the younger the father th larger the proportion of boys, according to some figur published in Norway Maurel's own research in a larg town in the south of France, and elsewhere, showed th among the well-to-do the proportion was only 126 boys 149 girls The masculinity was thus only 84 5 per cent, other groups only 76 In a group of 100 gouty families th were 52 without children, and in the other 48 per cent masculinity was only 75 He does not cite figures in reg to syphilis, but it is his general impression that the surviv girls outnumber the boy babies

19 **Mumps Meningitis**—Massary, Tockmann and L found lymphocytic meningitis almost constant in their soldiers with mumps since early in 1915 The sugar albumin content of the cerebrospinal fluid was usually ab normal The constancy, intensity and long duration of lymphocytic meningitis were in marked contrast to the c ical findings Slowing of the pulse was the only constant persisting symptom No cerebral symptoms were not except in 23 per cent. of the cases, and they were transi and there were no appreciable nervous sequels in any insta

20 **Production of Urea in Tissues Undergoing Necrosi** Ameuille calls attention to the large output of urea w there is extensive suppuration and the patients are ea scarcely anything In one such case the man took noth but two glasses of milk per day, but he voided 32 gm of per liter, a total of 40 gm daily Necrosis in large suppu ing wounds on both legs evidently may induce the produc of urea beyond the capacity of the kidneys to eliminate the above case the urea content of the blood also ran up, symptoms of uremia developed

Paris Médical

June 30 VII, No 26, pp 533 548

22 *Elephantiasic Edema after War Wounds Meriel—p 534
23 Anesthesia of the Suboccipital Nerve as Sign of Fracture o Posterior Arch of the Atlas J A Sicard and H R —p 540
24 Abortive Epidemic Cerebrospinal Meningitis H Rendu—p
25 Plan for Model Operating Pavilion R D de la Riviere—p
26 Periodic Eructation R Benon—p 544

22 **Elephantiasic Edema**—Eleven typical cases are rel with illustrations of two showing the permanent edema pronounced decalcification of some of the bones of le hand following a war wound The edema always sto abruptly at a certain level, above which the limb was no This and other features of the cases suggested that a stricting band had been applied and that the resulting cular disturbance had entailed the neuritis The neuritis sists and may permanently incapacitate the man for a service It is important therefore to cure the edema prevent its factitious exaggeration Meriel has fou plaster bandage, reaching to the root of the limb, the means of prophylaxis The factitious edema promptly sides while the constitutional does not In conclusio recalls Sicard's chronic segmentary edema as possibly ing misleading

Presse Médicale, Paris

June 21 XXV, No 35, pp 361 368

27 *Abortive Treatment of Typhoid A Maute—p 361
28 *Treatment of Fractures of the Femur H Judet—p 363
29 Diagnosis of Scabies (Comment diagnostiquer la gale qua n'est pas dermatologiste) R Sabouraud—p 364

June [illegible] pp [illegible]

30 Causes and Frequency of Chronic Appendicitis J. L. Faure —p [illegible]
31 Rabies in Man [illegible] and L. Marchand —p 571
32 Technic for Detection of the Amebas J. Ravaut and C. Krolunitsky —p 573

27 **Abortive Treatment of Typhoid** —Mauté is treating typhoid on the principle of injecting a vaccine that has the most powerful modifying action on the body fluids along with the minimum of secondary toxic effects Typhoid and paratyphoid bacilli are too toxic to be considered for the purpose After long series of experiments on animals he succeeded in finding a saprophytic microbe isolated from spring water which seems to be nontoxic for all laboratory animals by ubcutaneous intravenous and intraperitoneal injection He sed it in an emulsion made with thirty-six or forty-eight our cultures the dose from 100 to 500 millions In 19 out of 25 typhoid patients thus treated the temperature dropped bruptly in twenty-four hours to normal or below and in 2 cases it did not go up again The effect on the temperaure is not so striking as the general benefit The toxic mptoms subside the headache the stupor or delirium dispear The tongue clears up and the diuresis increases he pulse may keep high for several days and the diarrhea ay persist but the patient usually gets hungry within three ays There is a chill for ten or twenty minutes after the njection but nothing at all alarming, no dyspnea nor dicrotsm of the pulse Certain other saprophytes seem to display e same action on the organism and it may yet be possible isolate the active substance and inject this alone His sults were promising also with the same treatment applied acute articular rheumatism and pneumonia The facts served seem to conflict to a certain extent with the generally accepted views as to specificity But facts are facts declares and those here related apparently open new rizons for the problem of immunity

28 **Fracture of the Upper Femur** —Judet advises continuous ension and a comprehensive plaster cast to combat the vitable abduction of the upper fragment with subtrochanter cture of the femur Illustrations show the special features fracture at this point He warns that continuous exten n incorrectly applied almost inevitably injures the funcning of the knee. Traction should be on the thigh alone h fracture of the femur even if traction must be weak is better to have a thigh a little shorter than normal than have a crippling knee

1 **Rabies** —In the six cases which developed under Jouras eyes the incubation ranged from twenty-one to fifty-e days Pasteur treatment was applied the same day the n had been bitten in one case the fifth seventh and ninth s in the cases of the three children The other man had had any treatment The onset of the rabies was sudden severe, in the midst of apparently perfect health Any se or the sight of a bright object, or a touch or taste senon was liable to bring on the convulsions but headache e rare. The fear of the light and of water comes from the membrance of the convulsions started by the contact of er with the mucosa in the mouth or the sight of a bright ect. This is the explanation of the origin of the term rophobia

2 **Simplified Technic for Detection of Amebas** —Ravaut s that if the amebas in the feces have still any vitality they can be started up to move about by heating the e as it lies in the microscope The flame of a match or small tampon dipped in alcohol and held under the slide answer the purpose or with a dentist s heated rubber a jet of hot air can be directed on the under side of slide. The cysts can be shown up best by impregnating n with a mixture of 0 5 gm iodin and 1 gm potassium d in 50 gm distilled water If feces are treated with a er cent. solution of liquor formaldehydi the cysts keep l for months He puts 5 c.c of this solution in a test tube a lump of feces about the size of a pea The tube is gged with nonabsorbent cotton, and it is shaken up until contents are well mixed. They will keep then for months the cysts show up clearly

Progres Médical, Paris

June 30 XXXII No 26 pp 217-224

33 Oscillometry in Diagnosis and Prognosis of Obliteration of Artery P Balard —p 217 To be continued
34 Paraffin Film in Dressing the Eye (Pansements oculaires à l'Ambrine) L. Dubar —p 218
35 Ambulance for Optometry Ginestous —p 221
36 The Baths of Caracalla at Rome A Satre —p 222

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 23 XLVII No 25 pp 785-816

37 *Kidney Stones and Operative Treatment (Nierensteine) F Suter —p 785
38 *Operative Treatment of Tuberculous Peritonitis (Tuberkulose Bauchfellentzündung) S Stocker —p 800
39 No Diagnostic Value in Thermoprecipitin Reaction in Gonorrhea B Galli-Valerio —p 805

37 **Nephrolithiasis in Switzerland** —Statistics published seven years ago apparently demonstrated that urinary calculi were becoming more frequent in Switzerland Lardy published further statistics in 1911 which showed the increasing consumption of meat especially mutton in the country and he attempted to connect these two facts As the supply of meat and above all of mutton, has been cut down so low since the war began it may be possible that urinary stones may become less frequent Suter here relates that during the years from 1900 to 1905 when he was assistant to a prominent surgeon at Basel he never encountered any cases of kidney stones but since then during his own practice there he has had thirty four operative cases of nephrolithiasis In sixteen cases the calculi were of the calcium oxalate type, in twelve the phosphate or carbonate type and five were urate calculi The latter were always small but by plugging the ureter they compelled operative treatment They were always infected so that it seems as if they must have been secondary to some infectious process Urate stones are more readily washed along than others and require operative measures only when one becomes impacted in the ureter Oxalate stones induce symptoms early, so that they are found small and easily removed by pyelotomy Phosphate stones on the other hand develop insidiously to such a size that nephrotomy or nephrectomy is usually required for them In his operative cases of nephrolithiasis there was very rarely a history of preceding colics One patient had twenty-nine stones, with a total weight of 116 gm in one kidney and a single stone weighing 90 gm in the other, but they were only casually discovered as the urine persisted turbid after cure of the cystitis which had brought the man of 61 to the physician In one case after a brief period of pain in the right kidney pains developed in the left kidney, very severe and protracted, and later in the bladder After removal of a stone in the right kidney there were no further pains

With hydronephrosis the stones float around, in one such patient the outlet became plugged with the stone as he stood, but it evidently floated away as he reclined Infected stones did not cause any more intense subjective disturbances than the aseptic Kidney stones can rarely be palpated but the urine is never normal If the microscope fails to show any red corpuscles on repeated examination, the probabilities are against nephrolithiasis Among his thirty-four kidney-stone cases four of the patients had a *single kidney and two* succumbed to the results of the total anuria for several days, rallying only temporarily after the operation The third recovered, as also the fourth after a secondary operation The fact that no urine is voided does not alarm, the patients apply for relief only when driven by pains The prognosis with pyelolithotomy is good With anuria the prognosis depends on its duration, as a rule

38 **Operative Treatment of Tuberculous Peritonitis** —Stocker remarks that the time and money spent for a course of heliotherapy in the mountains often goes for naught as, after return to the old environment, the tuberculous peritonitis flares up again The same is true also of courses of radiotherapy The peritonitis is extremely rarely the primary localization of the disease Schlimpert found that 89 9 per cent. of the patients dying with tuberculous peritonitis succumb in reality to tuberculous lesions elsewhere. Stocker had one patient with tuberculous peritonitis and a

Semana Medica, Buenos Aires

May 17, XXIV No 20, pp 563 590

65 Evolution of Obstetrics in Argentina E Zarate —p 563
66 *Examination of Lungs of Recruits J A Lopez —p 569
67 Lymphocytosis in Syphilitics C. P Mayer and A C Gourdy —p 575 Continuation

May 24 No 21, pp 591 614

68 Research on Lactic Acid Bacteria E Fynn —p 591
69 Suppurating Phlegmon of Dental Origin Extending from Mouth to Upper Thorax I Justiniano —p 594
70 History of Public Hygiene in Argentina, Autobiography E R Coni —p 595 Continuation

66 **Detection of Tuberculosis in Recruits**—Lopez comments n the high percentage of cases of pulmonary tuberculosis in ie Argentine navy, and urges greater care in the selection of ecruits so as to eliminate the tuberculous He remarks that hen the conscription officer and the examining physician nd large numbers of unfit, the former grows nervous for ar he may not be able to make up the quota for his district spite of himself, this *nervous apprehension* becomes parted to the examining physician and the latter is uncon-iously influenced by it and his judgment as to the compli- ce with the requirements for service becomes warped is is a common psychologic phenomenon, but in its influ- ce on the acceptance of recruits it may have disastrous sequences not only for the man himself, but for the state e *tubercle bacilli locate first in the glands at the hilus* a rule, and attack the lower lobes oftener than the regions ve, usually on the right side But the tuberculous process e encounters so many obstacles that it develops slowly or y heal In examining recruits this is the first point to be estigated, the hilus, the region around it and the base In ez' extensive experience he has found an isolated tuber-us process at the apex *only in a very few cases* Roentgen mination is indispensable in dubious cases to reveal tuber us glands at the hilus especially when the general con-ition seems to be below *par* *Pignet's index of robusticity* great help but the measurements for it should always be n with uniform technic.

Siglo Medico, Madrid

June 25 LXII No 3315 pp 445 464

Dermoid Tumor on the Eyelid B Castresana —p 446
Neuralgia and Neuritis in Syphilitics Sicilia —p 449
Peptic Ulcer L Urrutia —p 449 Continuation
Importance of Diathermy in Gynecology Poblacion —p 458 Conclusion

Grèce Médicale, Athens

XLIII No 19 20 pp 37 40

Heliotherapy for Nodose Erythema J Cecicas —p 37

Heliotherapy for Nodose Erythema—Cecicas says he nly three cases to report, but the heliotherapy was so tly successful in them that he thinks its action must arded as specific *In none of the patients were there* indications of tuberculosis but the disease was present families Cecicas accepts Landouzy's theory that erythema in a large proportion of the cases is a mani-on of tuberculous bacillemia This assumption is justi-rther by the efficacy of heliotherapy As the morbid re destroyed under its influence antibodies are gen-which act *from within* on nodules remote from the d areas They retrogressed along with the exposed In one of his cases iritis developed in the course of atment The second eye became affected two months This patient was a woman of 56 and the nodose a had first appeared eight years before The other , were a woman of 27 and girl of 12 There has been rrence during the months to date

rlandsch Tijdschrift voor Geneeskunde, Amsterdam

Ma 26 I No 21 pp 170 1782

urious Action of Optochin on the Organ of Vision J van er Hoeve and W K Mansholt —p 1710
lin Dyes in Treatment of Wounds (Wondbehandeling met yoctaninum caeruleum T M Mesdag —p 1716
umatic Closure of Outer Ear Passage Two Cases P T L an —p 1719
ent Status of Our Knowledge of Typhus H Aldershoff —1726

76 **Optochin Visual Disturbances**—In the case described *the previously healthy young* man with pneumonia, on an exclusive milk diet, was given optochin in moderate doses (200 mg six times a day) to a total of 4 gm, when he became totally blind Vision partially returned later but with paralysis of accommodation, atrophy of the optic disk and sclerotic changes in the vessels The impairment of vision was so severe that he was unable to resume his work as bargeman W Hess, in 1915 found records of disturbance of vision in 6 per cent, and Uhthoff, in 1916, in 3 or 4 per cent *He found* Marchi degeneration of the nerve tissue in two cases in which death had followed soon after the optochin had been taken In the case here related the vascular *changes did not* develop until several weeks after the first symptoms, but they continued a progressive course while the nerve changes seemed *to show* a tendency to retrogress

78 **Traumatic Occlusion of the Auditory Canal.**—Kan obtained good results with Trofimow's technic cutting perpendicularly through the atresia and then, with an incision back *to the* ear, *turning* the outer ear over forward, thus obtaining access to the obstructed portion of the meatus The obstructing bone or connective tissue was then chiseled out

79 **Typhus**—Aldershoff remarks that the occurrence of a few cases of typhus at *Amsterdam has made this one of the* burning topics of the day in Holland He does not regard it as proved that transmission of the disease occurs exclusively by lice *He reiterates that treatment can be only symptomatic*

Hygiea, Stockholm

June 16 LXXIX No 11 pp 513 576

80 *Cyst of the Common Bile Duct E Waller —p 513

80 **Cyst in Bile Duct**—Waller has found records of 34 cases of an idiopathic cyst of the common bile duct and gives a summary of each Operative treatment was applied in all *but* 5 of the cases *He also refers to a number of cases of* cystic dilatation but some tumor, calculus, or chronic inflammatory process was responsible in this group The diagnosis was never made in advance, the presumptive diagnosis being pancreas or *echinococcus* disease *or an abscess in the liver* The trouble might have been differentiated, however, from the recurring attacks of pain in the children or young adults usually accompanied with jaundice and fever, and the development of a cystic tumor fluctuating in size, in the right hypochondrium not corresponding to the gallbladder Among the 34 cases summarized there were 14 girls to 5 boys In *21 cases a fistula was opened into the cyst* These patients all died from the loss of bile, or the icteric afterhemorrhage or from infection One young man survived for three years with his fistula succumbing finally to pulmonary tuberculosis One girl of 18 died three months later from fulminating hemorrhagic purpura In 3 other cases an attempt was made to open a communication between the common bile duct and the bowel, but *all terminated fatally* as also *in 3 in* which the sac was removed

Only 5 of the total 34 patients recovered In 3 of the successful cases after a primary fistula had developed, *an opening* was made from the cyst into the bowel Three operations were required in one of the cases In two other cases a side-to-side communication between the bile duct and the duodenum was successfully made *One of these cases is reported* by Waller in detail from his own service The other was published by Bakes in 1907 Both patients were in apparently perfect *health one and two years later The necropsy* findings in the fatal cases are summarized Waller's patient was a girl of 10 who had had several attacks of abdominal pains every year during the last seven years The operation was done after three days of acute pains, vomiting and a subicteric tint of the sclerotics, the urine was bile colored, pulse 100, temperature 38 1 C and there was a large tender resistance in the right *hypochondrium* When the abdomen was opened, the elastic retroperitoneal tumor was assumed to be a hydronephrosis It burst during the maneuvers and clear dark green bile escaped Prompt *recovery followed* the *choledochoduodenostomy*

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ROENTGENOGRAPHIC AND MICROSCOPIC STUDIES OF TISSUES INVOLVED IN CHRONIC MOUTH INFECTIONS*

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The idea that mouth infections often cause serious secondary effects has in recent years, become definitely crystallized in the minds of physician, dentist and layman Clinical observation has been supported by careful laboratory investigations It is now generally recognized that a chronic suppurating focus may lead to any one of a considerable group of diseases most of which are insidious in their development and extremely chronic in their progress The chronic focus is therefore properly considered a menace to health, and its removal is demanded The dental profession is thus confronted with a most serious *problem*, so serious that the practice of dentistry must be to a considerable extent revolutionized for its solution The chain of causes and symptoms leading up to these mouth lesions and the peculiar physiologic relationships between the tissues involved *present complex problems* which have been but partially solved There are, however, certain outstanding features the clear recognition of which should form a basis for future study

The normal person should have thirty-two teeth At 21 years of age the average number of teeth is about thirty at 60 years this number has been reduced to possibly ten on the average many having lost all With few exceptions the loss has been the result of chronic infection either alveolar abscess or chronic pericementitis On the average each person loses a tooth every year and a half or two years, the number increasing with advancing years, each tooth having been a source of chronic infection for from one to five or ten or fifteen years, so that a large percentage of persons are not free from infection involving the maxillary bones from 20 years of age until death, or until all the teeth are lost It is safe to say that fully 50 per cent of persons 25 years old have infections which have destroyed areas of the bone about the teeth sufficient to be easily detected by roentgenoscopy, and that this percentage gradually increases until it closely approaches 100 per cent in persons who are not edentulous at 50 years of age The estimate made several years ago by Dr T L Gilmer that 75 per cent of adults would be shown to have chronic infections involving the maxillary bones is fully supported by statistics thus far gathered

It would seem desirable to establish the element of danger to health which these infections represent It is not possible at this time however, to express in figures the relationship existing between these mouth foci and the systemic effects because the same systemic effects may result from such a variety of sources Mouth infections might be considered as causal in proportion of their percentage of occurrence to other original foci although the defense of the various tissues attacked would doubtless modify such a calculation It is certainly illogical to conclude that a particular systemic effect is due to a mouth focus unless all other sources have been eliminated Without question, in many cases, several sources are acting simultaneously

Apparently the resistance of a large percentage of persons is sufficient to give full protection for years, yet we must ever keep in mind the insidious development of the secondary effects and then ask ourselves if we can be even reasonably certain that one's health is safeguarded so long as there is definite evidence of infection in the mouth

There are two points of initial attack and two entirely separate routes of progress by which chronic mouth foci become established The chronic lesions themselves, however, have many characteristics in common The one begins with dental caries, as a result of which the pulp of the tooth becomes involved directly or indirectly and an inflammation of the periapical tissues is established The other begins as a gingivitis and progresses alongside the root toward the apex, involving the peridental tissues In both, the destructive processes include the peridental membrane, the bone of the alveolar process and the cementum covering the root of the tooth

In view of the high prevalence of both forms of these lesions in adults, and of their extreme chronicity and intractability to treatment, to which reference will be made later, our hope for the future lies principally in prevention, and it is this which calls for radical changes in dental practice Dental caries must be prevented or so treated that there will be the highest possible degree of pulp conservation This means broader education of the public, and especially of children, to the need and means of better care by themselves, as well as more frequent and regular observation and treatment by the dentist The dentist must follow more scientific lines in all operations better to control caries, and so to prepare and fill cavities that the pulps will remain vital Gingival irritation must be reduced by better cleanliness by the patient and there must be improvement of technic in both operative and prosthetic procedures by the dentist so that there will be no irritation, either by margins of fillings, crowns, etc, or by food impaction as a result of faulty forms

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* Chairman's address read before the Section on Stomatology at the Sixty Eighth Annual Session of the American Medical Association New York June, 1917

or tooth contacts While these are simple statements which are readily accepted by all, their adoption in practice can come about only as a result of a fuller appreciation by dentists generally of the pathologic problems involved, both at the original foci and in
he remote after-effects

The changes which take place in the peridental tis-
ues, as inflammatory processes progress to the estab-
ishment of chronic foci, represent the normal reaction
56 hronic irritation accompanied by infection, plus
the hi changes in the specialized elements of these
gentinc s[1] has recently shown that the principal
tain as to elin the infections beginning in the
ues Noy ntion ohi rivascular lymphatics He
ite of travel o nfit, the cases of gingival
givae is by way of the p p the quota
led attention to the fact that, in hensio alculus, the
itation caused by deposits of salivary r is destruc-
sels of the gum tissue are followed and the com the
n of the bone of the alveolar process is fro rpeca-
n side This explains the previous clinical obser
1 of Black[2] that deposits of salivary calculus do not,
a rule, cause the formation of pockets alongside
roots of the teeth

n cases of chronic pericementitis, the blood vessels
ich lie within the peridental membrane are followed
the course of these vessels is mainly in the direc-
parallel to the long axis of the tooth, we have an
lanation of the more rapid progress of these infec-
is toward the apex, as compared with their progress
rally around the root, resulting in deep, narrow
kets The fact that chronic alveolar abscesses do
cause a similar destruction of the peridental mem-
ne in the opposite direction is also explained, as
movement of the lymph is from the gingivae
ally

Many specimens[3] of the tissues overlying these
kets, some including the teeth and all of the sur-
nding structures, studied in the research laboratory
Northwestern University Dental School during the
five years, show the changes which have been
ribed by Talbot, Noyes and others These include
thickening of the walls of the vessels to the point
bliteration, with the gradual disintegration of the
ounding tissues until apparently necrotic areas are
ned, the tissue taking the ordinary stains poorly
ot at all These areas involve both the soft tissue
the alveolar process Eventually the peridental
brane seems to be severed for a space, leaving a
ion attached to the cementum of the root and a
ion attached to the alveolar process Areas of
rption of the cementum appear in many specimens,
e apparently occur early, as a response to the irri-
n caused by the approaching destructive process
r the tissue remaining attached to the cementum
and disappears, leaving the cementum entirely
ided The cement corpuscles also die, and the
ntum becomes a necrosed, pus-soaked tissue
he peridental fibers attached to the bone are simi-
destroyed, and the bone is also invaded, areas
g hollowed out along the lines of the vessels
k[4] called attention to the fact that we might expect
fibers of the peridental membrane and the alveolar
ess to disappear, as a purely physiologic process
bsorption, following the severance of the mem-
e from the ntum, regardless of the continued
progress of the pathologic invasion Doubtless both processes are factors in most cases

The rôle which the gingival epithelium plays in these cases is extremely interesting Many specimens show extensive projections deep into the submucous tissues and into the bone itself Cross sections of these projections frequently show the cells in concentric rings, suggesting epithelioma A growth of epithelium down into the pocket is frequent, apparently an attempt to line the pocket and protect the connective tissue We have also noted, in cases in which the overlying tissue is cut away, exposing the denuded root, that the epithelium of the gum tissue will not only cover the cut surface, but also grow down to the line of attachment to the cementum, thus forming a new gingiva

Practically the same changes take place in chronic alveolar abscess, except that the progress along the surface of the root is slower, is more likely to include the entire circumference, and a cavity is formed in the
nding to the area of detachment of the
bone correspo teriology of these cases has been
cementum The bac ted in several papers
studied by Gilmer[5] and repor more complex,
The bacteriology of the pus pocket is more
and will probably never reveal a specific organism
The paper read before this section last year by Lesco-
hier[6] gives practically all available information

As has been pointed out prominently before, the denuded cementum is the factor of prime importance in maintaining the chronicity in both groups of cases A pus-soaked tissue, analogous to necrosed bone, except that it cannot be exfoliated, it defies reattachment of the adjacent tissue and remains as a continuous irritant The prompt healing of these areas following the extraction of the teeth is sharp evidence of the rôle which the cementum plays While the invasion of the surrounding soft tissues by infection is of the greatest importance in considering these areas as a menace to health, it is of very little consequence so far as healing is concerned The infection is quickly eliminated by the tissues when the irritant — the cementum — is removed

During the past year I have had roentgenograms made of all the teeth and adjacent bone for about 400 persons, for the special purpose of determining the frequency and extent of the infections of the maxillary bones It was realized that most roentgenograms are taken because of a definite indication, consequently they do not represent average conditions In order that these might represent as nearly average conditions as possible, the persons were selected from several sources, and most of them without previous inquiry as to mouth conditions or general health About 175 are of the mouths of members of the senior class at Northwestern University Dental School, a few were patients of the school, a few were selected from the files of other dentists, a few were selected from the files of Dr Leach, who did the roentgenographic work, and a limited number were my patients

For persons under 40 years of age, the figures presented probably represent very nearly average conditions We were able to select from these roentgenograms a group of thirty full mouth examinations for persons, most of whom had the full complement of

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of Oute of the Pathology of the Peridental Mem
Noyes, F B ssn, April 1917, p 375
Jour Nationa r Know ntal Pathology, p 100
Black G V S the past year by E. H Hatton M D
Specimens prepar n University Dental School
ch investigator, Pathology, p 168
Black, G V Spe

5 Gilmer, T L. Chronic Oral Infections Arch Int Med April 1912, p 499 Gilmer T L., and Moody, A. M A Study of the Bacteriology of Alveolar Abscess and Infected Root Canals, The Journal A. M A, Dec 5 1914, p 2023 Oral Health, February, 1916

6 Lescohier, A. W The Bacterial Findings and Their Relation hi to Pyorrhea Alveolaris and Interstitial Gingivitis, The Journal A M A, Feb 10, 1917, p 414

thirty-two teeth which show no infection whatever of the maxillary bones and not one of these thirty persons had had a single pulp of a tooth removed. The 300 films of this group are mounted on a single sheet of celluloid and make an interesting study.

For persons over 40 years of age we were not so fortunate in securing a large majority who did not present evidence of infection before the roentgenograms were ordered. Therefore they show a percentage of infection above the average.

The accompanying table was made from 3,000 roentgenographic films of the teeth and adjacent bone of the mouths of 300 adults. In each case ten small films were made. The tabulation includes the age, systemic symptoms, number of teeth, disease of the peridental membrane as indicated by destruction of bone alongside the roots, alveolar abscess as indicated by destruction of bone at the apexes of roots, the number of teeth having good or poor root canal fillings with the number of abscesses in relation to each group, and the number of teeth without root fillings which were abscessed.

In order to secure as accurate information as possible as to systemic effects, it being impracticable to have a thorough physical examination in these cases, a questionnaire was prepared as follows: 1. Are any of the finger joints enlarged? 2. Has the patient noticed enlargement of other joints? 3. Have other joints or muscles been painful? 4. Is the patient anemic? 5. Is there inflammation of eyes, or impairment of vision, other than astigmatism? 6. Is there inflammation of nose, throat or tonsils? 7. Have there been attacks of appendicitis, ulcers of stomach, cholecystitis or other systemic conditions which might result from focal infection? 8. Does the patient complain of unusual nervousness or fatigue? On reviewing the answers the patient was entered as (1) negative, or (2) presenting occasional muscular, joint or similar symptoms, or (3) as having a well defined case of arthritis, nephritis, appendicitis, etc.

Through a misunderstanding on the part of one of my assistants, this report of systemic symptoms was not secured for sixty-eight persons included in the tabulation. It is realized that 300 cases would not have been sufficient to establish reliable data as to the relationship of these foci to systemic effects, and it is my intention to continue this study until several thousand persons shall have been examined. The statistics gathered so far are considered as forming a good basis for this work. It may be said now, however, that of those for whom histories were secured, there is a decided increase with advancing years which follows closely the percentage increase of mouth infections.

The average number of teeth per person is interesting. The tabulation shows thirty teeth per person under 25 years, twenty-nine per person of 25 to 30 years, twenty-six per person of 30 to 40 years, twenty-five per person of 40 to 50 years, and twenty-three per person over 50 years.

Destruction of bone about the sides of roots of teeth as a result of infections beginning in the gingivae is shown to increase very markedly after the twenty-fifth year, there being 9 per cent of persons below 25 years having these pockets, and 32 per cent for the ages from 25 to 30 years. For the succeeding decades the percentage increases to 64, 74 and 92. The number

TABULATION FROM 3,000 ROENTGENOGRAPHIC FILMS OF TEETH AND ADJACENT BONE IN MOUTHS OF 300 ADULTS*

Age	Number	Systemic Symptoms				Teeth	Peridental Membrane			Alveolar Abscess			Summary		Root Fillings				Large Canals				Small Canals				Alveolar Abscesses			
		No History	Negative	Complaint of occasional muscular or joint symptoms	Well defined cases of arthritis, nephritis, etc.	Average number teeth per person	Number of persons having loss of bone along sides of roots	Percentage having bone involved	Average number of [illegible] per person	Number of persons having bone destroyed at apices of roots	Percentage having bone involved	Average number of abscesses per person	Number of persons having total or partial infection of teeth	Percentage of persons having infection of maxillary bones	Number of persons having root fillings	Total number teeth with root fillings	Percentage of all teeth having root fillings	Number of root apices not clearly shown	Number of good root fillings	Number abscessed with good root fillings	Number of poor root fillings	Number abscessed with poor root fillings	Number of good root fillings	Number abscessed with good root fillings	Number of poor root fillings	Number abscessed with poor root fillings	Total abscessed with root fillings	Number abscessed no root fillings	Total abscessed	Average number of abscesses per person
Under 25	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	9	0.2	4	[illegible]	1.[illegible]	4[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	2	[illegible]	60	22	1	[illegible]	41	101	24	125	1.5
25 to 30	[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	2.0	[illegible]	3	1.6	[illegible]	[illegible]	[illegible]	1[illegible]	7.0	18	[illegible]	6	48	31	26	4	31	23	64	24	88	1.6
30 to 40	[illegible]	[illegible]	[illegible]	12	4	[illegible]	41	64	[illegible]	4	[illegible]	1.3	[illegible]	[illegible]	[illegible]	[illegible]	13.[illegible]	[illegible]	[illegible]	4	[illegible]	4[illegible]	20	1	70	42	94	12	106	1.3
40 to 50	[illegible]	1[illegible]		[illegible]	11	[illegible]	4[illegible]	74	[illegible]	[illegible]	[illegible]	2.0	4[illegible]	[illegible]	44	1[illegible]	13.[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	10	2	4	28	86	13	99	2.0
50 and over	4[illegible]	1	4	[illegible]	1[illegible]	2[illegible]	2	92	11.0	2[illegible]		1.5	40	100	28	111	10.[illegible]	1[illegible]	[illegible]	0	43	[illegible]	17	2	27	20	54	6	60	1.5
Totals	[illegible]	[illegible]	1[illegible]	21		27	1[illegible]	[illegible]	0	1[illegible]	5[illegible]	1.6	2[illegible]	77	[illegible]	[illegible]	9.0	1[illegible]	178	13	[illegible]	[illegible]	95	10	242	154	402	79	481	1.6

Large Canals: Upper central incisor, cuspid, second bicuspid, lingual roots of molars; lower cuspid, first and second bicuspids, distal roots of molars.

Small Canals: Upper lateral incisor, first bicuspid, buccal roots of molars; lower incisors, mesial roots of molars.

SUMMARY OF ABSCESSES IN RELATION TO ROOT FILLINGS

			Number Abscessed	
Good root filling, large canals	178		13	
Good root filling, small canal	95	273	10	23
Poor root fillings, large canal	338		225	
Poor root filling, small canal	242	580	154	379
Total		853		402

Percentage of abscesses for all root fillings 47, for good root fillings 8, for poor root fillings 65.

* In this tabulation the figures are probably very nearly correct as applied to all persons of ages below 40 years, as in the large majority roentgenograms were made without regard to indications. For persons of 40 years and over a considerable percentage of the roentgenograms were taken because of definite indications of infection, and the figures given are therefore correspondingly at variance from average conditions.

The persons whose mouth conditions are tabulated were selected from various sources as described in the paper, comparatively few being patients of the writer.

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7. Three thousand three hundred roentgenographic films, on celluloid mountings with illuminating box, were exhibited in connection with the presentation of this paper. These films were prepared and mounted by F. D. Leach, D.D.S., roentgenographer, Northwestern University Dental School, and his assistants.

Dr. Robert [illegible] Library

of pockets per month also shows considerable increase with age.

Fifty-two per cent. of persons under 25 years have chronic alveolar abscess, a much greater percentage than that of pus pockets alongside the roots in the same group. The abscess percentages do not increase as rapidly as the cases of chronic pericementitis, being 53 per cent. for persons from 25 to 30 years, 66 per cent. for persons from 30 to 40 years, 68 per cent. for persons from 40 to 50 years, and only 55 per cent. for persons over 50 years. The smaller number for those over 50 years is evidently because of extractions.

A summary of those having either peridental infections beginning at the gingivae or periapical infections, or both—persons who have infections involving the maxillary bones—gives rather astonishing results. The percentage is 56 for persons under 25 years of age, 72 for those between 25 and 30 years, 87 for those between 30 and 40 years, 89 for those between 40 and 50 years, and 100 per cent. for those over 50 years.

The youngest person in the tabulation was aged 17 years, and there were but nine out of the eighty-nine in the group under 25 years of age who were under 21, so that the figures for this group might be considered as from 20 to 25. While no tabulation has been made for children, I think I am safe in stating that practically no infection of the peridental membrane beginning in the gingivae will be found, and comparatively few chronic alveolar abscesses. Therefore, attention may be called to the fact that the tonsils are much more likely to be the seat of original foci in children.

Attention is again called to the fact that the figures for persons beyond 40 years are too high as average figures, especially for peridental infections, because the roentgenograms for many of these, and especially for persons over 50 years, were taken because the patients presented themselves for consultation.

The tabulation of abscesses in relation to root fillings should be of special interest to dentists. The remark has often been made that roentgenograms show many teeth with imperfect root fillings which are not abscessed, and such observations have doubtless supported continued carelessness in the technic of treating and filling root canals. For this study, the teeth are divided into two groups, those having large root canals, and those having small canals. The root fillings were classified as good or poor. A root filling was classed as good if it extended to or close to the end of the root, and if the filling apparently filled the apical portion of the canal. For some small canals, if the filling did not reach the root apex by 3 or 4 mm., and the canal could not be made out in the roentgenogram beyond this point, the root filling was classed as good. I do not advocate this plan of treating small canals, but wish to impress the fact that I was liberal in classifying root canal fillings as good.

Of the teeth with root fillings in large canals classed as good, but thirteen out of 178 were abscessed; in small canals, but ten out of ninety-five. This is 8 per cent. Of those in large canals classed as poor, 225 out of 338 were abscessed; in small canals 154 out of 242. This is 65 per cent. Could there be presented a better argument, a more imperative demand, for more careful technic in the treatment of root canals?

CONCLUSION

These suppurative detachments of the peridental membrane are in practically all cases permanent detachments, whether the detachment is at the side of the root or the apex. The area of bone destroyed about the apex of a root is not so important as the extent of the destruction of the peridental membrane. There is no hope of reattachment of the surrounding tissue to the root, and if such teeth are permitted to remain in the mouth—excepting those which are operated on by resection—it should be with the definite understanding that they necessarily continue as a menace to the health of the individual, and that the use of such teeth in mastication overbalances this menace to the health. In such cases we are using our best judgment as to the patient's general physical condition and his resistance. We must do this with the thought ever in mind that nephritis, endocarditis, cholecystitis and other secondary effects are so insidious in their onset that the condition is likely to be serious and the patient even beyond the possibility of recovery before it is discovered by the physician.

ABSTRACT OF DISCUSSION

Dr. Thomas L. Gilmer, Chicago: To offset the great harm that is being done by infectious mouth foci, our methods of practice must be changed. I have no doubt, as the essayist has said, that mouth foci are blamed for many things for which they are not responsible. There are some dentists and not a few practitioners of medicine who are doubtless going too far in the wholesale removal of teeth. The physicians with whom I have been associated endeavor to eliminate all foci of infection, including the teeth, from all parts of the body. They realize that there are many other parts of the body beside the jaws which may be a cause of metastases. Pyorrhea specialists should take up the subject of pyorrhea in somewhat the same exhaustive way as has been done by Drs. Black and Noyes to determine what its pathology is. Then they may be able to offer rational treatment which will bring about a cure. No one should call himself a specialist unless he does this. Dentists have tremendous problems before them which will take the wisest and best among them to solve. I trust that they will go to work at once to discover the cause and cure of some of the more serious diseases of the mouth.

Dr. G. Alden Mills, New York: Dr. Black's analysis and research in this matter take me back to 1876 when I wrote the first articles that were published on this subject of Riggs' disease, except one by Dr. Riggs, and by these articles were initiated the studies on pyorrhea. I studied in sympathy as a student of Dr. Riggs. I had the value of his acquaintance and the value of his treatment on my teeth, and though 86 years old, I am happy to say that I have a good many teeth left. Dr. Smith of Philadelphia has forced on the profession the question of prophylactic treatment. So we have now to say that prophylactic treatment is of immense help in the treatment of this disease.

Dr. E. P. R. Ryan, New York: The greatest thing about Dr. Black's paper is the information he has given us of the cases he has reported that are not, and cannot be blamed for systemic infection. Men working every day need some standardization of examination of the roentgenograms that are made. We all have an isolated case here and there that we lay to some systemic condition of the mouth, but what the man in practice wants to know for making a rational diagnosis is, What is the percentage of those cases? We can extract all the teeth in the mouth, but that is not good dentistry, and that is not going to cure the disease. I think the suggestion of the examination of the normal teeth as well as those diseased, and determination of the relative percentages, should be accepted, and some means devised whereby we can all make observations and report them, and arrive at some definite and precise conclusion.

Dr. Arthur Zentler, New York: As the paper of Dr. Black deals with the pathologic study of the tissues involved in infections of the mouth, I feel that it may be appropriate to report the divers findings in the examination of sections obtained in operating for eradication of such oral infections.

The picture seen in the photomicrographs prepared from pathologic laboratory slides is different when obtained from mouths of patients suffering from different types of general disturbance, for instance arthritis, cardiac lesions, infection due to external trauma (a blow on the chin), which is relatively of acute character apparently causing no general disturbance, still different when the infection is due to operative trauma, the infection being of long standing and in a patient of a special diathesis for instance tuberculous

[The discussion was illustrated by lantern slides]

Dr. Arthur D Black, Chicago Among the films exhibited there is a set of roentgenograms of the mouth of a patient who was under the care of a so-called pyorrhea specialist The radiographs show that the alveolar process has been destroyed nearly to the ends of the roots of the upper bicuspids and molars and these teeth are apparently being held in place by orthodontia appliances while they are scaled and treated This case illustrates what I meant when I said the practice of dentistry needs to be revolutionized Here is a mouth in which it is evident to any one who has studied the problem of focal infections that the teeth should be extracted There must be developed in the dental profession a sense of recognition of mouth infections before we can make real progress with this subject The dental profession must recognize that such foci are a menace to health, then it will not be difficult to get action The more I study these conditions the more I am convinced that more teeth must be extracted

THE IMPORTANCE OF DIET AS A FACTOR IN THE PRODUCTION OF PATHOLOGIC CHANGES *

WILLIAM SALANT, M D

WASHINGTON, D C

It has long been known to the medical profession that the etiology of certain diseases is closely associated with, and may indeed be dependent on, the kind of food in daily use by man This was found to be especially the case when the employment of a particular diet was persisted in for a considerable length of time But within recent years the conception of a causal relation between diet and disease has taken a more serious turn, leading in some cases to the formation of well defined plans for the establishment of a connection between the food eaten and the manifestation of some morbid processes The progress made in this direction may be readily appreciated on examination of the literature on this important subject, which bears evidence of numerous painstaking and in some cases exhaustive experimental inquiries that resulted in the accumulation of a considerable store of valuable information The data at hand, although far from complete, nevertheless justify the conclusion that abnormal changes may be seriously influenced, and sometimes brought about, by the consumption of certain foods

It has been shown by numerous experiments that a diet from which the juices of certain fruits are absent may cause a condition closely similar to, if not identical with, scurvy in man The investigations on beriberi have disclosed the important fact that an exclusive diet of polished rice when eaten for some time may produce this condition in the human subject It has also been definitely established by a number of observers that polished rice alone fed to birds for about six weeks may cause polyneuritis Recent studies of pellagra have likewise shown that its etiology is closely associated with deficient diet

The role which diet plays in the causation of disease seems to be even more extensive than that just indicated, different lines of inquiry furnishing evidence of its growing importance in pathology That it is not confined to the so-called deficiency diseases is suggested by the results of pharmacologic investigations which have been brought to light within the past few years, for it has been shown that a definite relation exists between diet and pathologic changes produced by well defined chemical substances

A valuable contribution to the subject was made by the investigations of Hunt,[1] whose results indicate the importance which might be attributed to diet as a factor in determining the toxicity of some poisons In experiments on mice that were fed a large number of different substances, Hunt found that the reaction to acetonitril varied considerably with different diets, some of which increased forty times or more the resistance to this poison Glucose, oatmeal, liver and kidneys were found to exert a beneficial effect, the toxicity of acetonitril being decreased many times This is attributed by Hunt in part to a specific effect on the thyroid He also pointed out that some articles of diet, such as eggs, milk, cheese and various fats may, on the contrary, lower the resistance to acetonitril

The protective action of diet against drugs has been studied at various times in the pharmacologic laboratory of the Bureau of Chemistry for several years In studies with caffein, Rieger and I[2] were frequently impressed by the difference in the reaction to this drug which was exhibited by dogs receiving different amounts of protein

A high protein diet, it was found, was conducive to increased resistance to this drug It might be stated that all the animals were given a diet of the same caloric value, but the amount of meat was reduced to 6 gm daily, which is one third of the amount given in the experiments on a high protein diet In individuals that received a low protein diet, symptoms developed after much smaller doses We also found in some experiments that abscesses developed at the site of injection when caffein was given subcutaneously The same treatment in dogs on a liberal diet of meat was never followed by local infection in any of the experiments with caffein which were performed in my laboratory Evidence of the effect of diet was also furnished by studies that were carried out with several other chemical substances In experiments on the toxicity of oil of chenopodium which Nelson and I[3] carried out on different animals, we found that fatty oils modify the action of this substance The toxicity of the oil of chenopodium for cats and rabbits which had received cottonseed or coconut oil was diminished at least 50 per cent in some cases The surely fatal dose of this drug was well borne, or caused only slight symptoms in animals which had received this substance with the fatty oils Evidence was also obtained that diet rich in carbohydrates has a similar effect on rabbits to which the essential oil is administered

As pointed out in my paper with Smith,[4] rabbits which were fed carrots resisted much larger doses of the tartrate than those which received oats and cabbage More than twice the surely fatal dose could be given

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* From the Pharmacological Laboratory Bureau of Chemistry, U S Department of Agriculture

* Read before the Section on Pathology and Physiology at the Sixty Eighth Annual Session of the American Medical Association New York June, 1917

[1] Hunt Bull 69 Hyg Lab U S P H. S

[2] Salant and Rieger Bull 148 Bur of Chem U S Dept. Agric.

[3] Salant and Nelson Am Jour Physiol, 1915 36, 440

[4] Salant and Smith Am Jour P[illegible]l., 1914, 35, 239

without producing symptoms The investigation of the effect of diet on the toxicity of this substance was resumed recently, and was considerably extended by Swanson and myself[5] The observations were made on rabbits and cats with a large number of different diets which were given for some time previous to the subcutaneous injection of tartrate Striking differences in the toxicity were observed A dose of 3 gm per kilogram was survived when young carrots were fed for four days before the tartrate was given In another series with 3 5 gm per kilogram, one out of four rabbits survived and another lived six days The surely fatal dose was found to be not less than 4 gm per kilogram The resistance was likewise very marked when carrot leaves were fed from four to eleven days before injecting tartrate, although it was less than in the case of the tuber of young carrots, the minimum fatal dose being about 2 5 gm per kilogram

A high degree of resistance to tartrate was also shown when sweet potatoes were fed A dose of 2 0 gm per kilogram failed to produce nervous symptoms or furnish evidence of renal irritation Sodium tartrate proved to be most toxic when the diet consisted of oats Under certain conditions 0 5 gm per kilogram injected subcutaneously proved to be fatal in 85 per cent of the experiments, symptoms of renal irritation and nervous disturbances being noticed, but in some cases it was necessary to give 1 gm per kilogram to produce typical symptoms and death In other words, the resistance to tartrate was at least four times as great on a diet of young carrots as on oats Experiments with tartrate on cats that received different diets failed to show any marked difference, but it may be remarked that in these animals the toxicity was markedly increased in starvation, which was also noticed in rabbits There is reason to believe that similar effects may be produced not only in starvation, but when the diet is restricted

That protection is also afforded by diet against the injurious effects of some of the heavy metals was furnished by the results of experiments with zinc malate Wise and I[6] found that small quantities of this salt given intravenously to rabbits produced marked albuminuria in twenty-four hours Zinc malate equivalent to 10 mg of zinc per kilogram was injected into the ear vein of rabbits which were fed oats or carrots for some time previous to the experiment Out of six rabbits which received a diet of oats alone, only one survived, two lived three days, the rest died at the end of four, six and eight days All of them developed a very pronounced albuminuria, approximately 300 to 500 mg of albumin being present in 100 c c of urine The rabbits which received carrots as the exclusive diet exhibited a decidedly greater resistance to zinc poisoning Only two fatal cases occurred in the same number of experiments One of the rabbits died after two days, but in this experiment 1 25 mg of zinc per kilogram were given, and what may be particularly interesting in this connection was the fact that the appetite of the animal was poor before the zinc was administered It is worthy of note that but a trace of albumin could be found at any time after the injection of zinc malate in these two rabbits In all of the other carrot-fed rabbits that survived the injection of zinc, the injury to the kidney was apparently not serious, if it existed at all In some cases the urine was free from albumin or contained mere traces Appreciable quantities were found, however, in the course of observation, but in nearly every case they disappeared within twenty-four hours This, as is well known to every experimenter who has studied the urine of rabbits, is a frequent occurrence in these animals and may be physiologic It cannot be attributed, therefore, to zinc Evidence that a carrot diet protects the kidney against other nephritic poisons was obtained in my laboratory in experiments with oil of chenopodium and coconut oil Bengis and I[7] carried out a series of experiments with these two substances on rabbits Our results have shown that from 0 2 to 0 4 c c per kilogram of the oil of chenopodium dissolved in 15 c c of coconut oil and fed to rabbits may be followed by albuminuria which was very pronounced in some individuals The appearance of many granular casts which persisted for several days had also been observed Another series of rabbits, which had been receiving carrots for several days, were subjected to the same treatment Indeed, the amount of oil of chenopodium per kilogram that was fed with 15 c c coconut oil was even larger than in those rabbits fed on oats, but no evidence of renal disturbance was present Neither albumin nor casts appeared as a result of this treatment Furthermore, when the same animals were given oats, and then carrots, the results obtained were similar to those described above The albumin and casts promptly disappeared when the carrots were substituted for oats It also happened sometimes that the appetite in some of the carrot-fed rabbits suddenly diminished This was soon followed by the appearance of urinary symptoms, thus showing again that a carrot diet protects the kidney Finally, I should like to report the results which Swanson and I[8] have been fortunate to obtain recently in our studies on the effect of diet on the permeability of the kidney in tartrate nephritis These experiments, which are still in progress, indicate that the injury to the kidney caused by this salt varies considerably with the diet From 0 2 to 0 3 gm of sodium tartrate given subcutaneously may retard the elimination of phenolsulphonephthalein to a very considerable extent in rabbits when fed oats alone The amount of dye eliminated had decreased by a half to two thirds about five hours after the administration of 0 2 gm sodium tartrate per kilogram

The injury was much greater when 0 3 gm sodium tartrate per kilogram was injected None, or merely a trace, of the dye appeared in the urine of two rabbits on the day of the injection of tartrate Three days later phenolsulphonephthalein was injected again Four per cent of the dye was eliminated by one rabbit, and 5 per cent by the other in three hours In a third experiment 37 per cent of the dye was eliminated on the day tartrate was injected A test made two days later indicated that no improvement occurred, the amount of dye eliminated being 30 per cent In all cases functional tests were made on the two preceding days before injecting tartrate The amount of dye eliminated varied between 63 and 86 per cent When the dose of tartrate was raised to 0 5 gm per kilogram, from 0 5 to 1 per cent of dye appeared in the urine on the day of injection Its elimination continued for several days When carrots alone were given for three to four days previous to the injection of tartrate, and if this diet was continued for some time after the administration of tartrate, renal permeability remained quite satisfactory, although the minimum dose was much larger than in experiments on a diet of oats Functional tests made at the end of five hours after injection of 0 5 gm of tartrate per kilogram indicated that the elimination of dye was normal, or nearly so, in all cases except one, in which only 31 per cent of phenolsulphonephthalein was eliminated on the day tartrate was administered It may be remarked that in this case the permeability of the kidney was found to be below the average during the preliminary period Corroborative evidence of the favorable effect of this diet was obtained with larger doses One gm of sodium tartrate per kilogram caused marked retardation of the elimination of phenolsulphonephthalein in some experiments, but in most cases recovery of renal permeability was observed within one to three days after injecting the tartrate It is worthy of note that it occurred even when the dose was doubled

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[5] Salant and Swanson Proc Soc Exper Biol and Med, 1917, **14**, 100

[6] Salant and Wise To be published

[7] Salant and Bengis Jour Pharmacol and Exper Therap, 1917, **9**, 1529

[8] Salant and Swanson To be published

In experiments with 2 gm of sodium tartrate per kilogram, disturbance of renal permeability was observed at the end of one or two days, but recovery occurred on the second or third day

The protective action of diet against injury to the kidney had also been pointed out by previous investigators Ellinger[9] reported about ten years ago that cantharidin failed to cause nephritis in rabbits which had been receiving carrots More recently Opie and Alford[10] maintained that a carbohydrate diet protects the kidney, as well as the liver, against different poisons It may be pertinent to inquire how this action is brought about, and which component of the diet is responsible for the protection afforded The larger amount of bases causing an alkaline urine may be thought of as the cause, but this can be promptly eliminated from our consideration since other alkaline diets, such as hay or cabbage, do not protect the kidney against tartrate Whether the large amount of sugar present in carrots, which favors the accumulation of very considerable quantities of glycogen, is a factor is not decided It appeared to me[4] at one time that such an assumption might be justified The explanation may be found perhaps in the effect a carrot diet produces on bacterial growth It has been shown by Metchnikoff and Wollman[11] that indol formation is inhibited in rabbits when fed carrots Perhaps the formation of cresol and phenol, and other substances which may cause renal irritation, is likewise inhibited by a carrot diet or other diet rich in sugar Intestinal intoxication may indeed be the important factor, therefore, which operates in modifying the toxicity of various poisons

Our knowledge of the relation of diet to the action of poisons is, of course, far from being complete Indeed, it is as yet in its infancy The evidence which I have presented is not intended as a warrant for generalization, but it should serve rather as a stimulus to further investigation of a difficult but a very important subject full of promise of valuable results to medicine

ABSTRACT OF DISCUSSION

Dr. Robert A Hatcher, New York Dr Salant's paper deals with a subject of such extraordinary complexity that no systematic discussion of it is possible in a short time, hence no apology is necessary for limiting my remarks to a few suggestions It has probably occurred to Dr Salant that the water present in a diet of carrots might account for some of the difference in the toxicity observed Intestinal secretion and intestinal movements are also markedly influenced by the amount of water taken, and it may be recalled that tyramin and histamin, to mention only two active substances, have been found in the circulation during intestinal stasis, and it is easy to understand that these and other poisons may influence the circulation profoundly, and existing pathologic processes secondarily, in the most diverse ways

We have had occasion to observe a remarkable difference in the toxicity of certain active poisons for vegetarian rodents, including the guinea-pig, rabbit and white rat, on the one hand, and carnivorous animals, such as the cat and dog on the other In some cases, at least, we have found this to be due to difference in the capacity of the liver to fix and destroy poisons as shown by the fact that when the liver of the resistant rat is removed it behaves toward some of these poisons more nearly as the cat or dog does

I have been tempted to suggest a general, but not universal, development of a tolerance toward vegetable poisons in these animals which must be subject to frequent accidental poisoning Dr Voegtlin recently remarked to me that the effects of diet on the toxicity of poisons indicate some of the precautions to be observed in conducting those biologic tests which are dependent on toxicity, such as the biologic standardization of drugs

Dr Alfred F Hess New York The fact that the toxicity of these drugs is increased on an oat diet, which is essentially an acid diet and is lessened by a diet of carrots, which is essentially an alkaline diet raises the question whether the reaction of food plays an important part Dr Salant touched on this question He said that carrots and cabbage, which constitute also an alkaline diet, do not have the same effect Did he give an alkaline diet to any of these animals? Did he try to neutralize the acid effect of the oat diet by a liberal addition of some alkali?

Dr. William Salant, Washington, D C. The question raised by Dr Hatcher regarding diuresis being a factor in increasing the resistance to different poisons has been attended to in our studies of the subject, but I did not bring all the experimental material before you on account of the short time allowed for presentation of the paper Rabbits which were fed oats were given 100 c.c of water by mouth two or three times a day Beside, diets which favor diuresis, such as cabbage have not the same protective effect as a diet of carrots Furthermore, not all carrots have the same protective action Old or winter carrots did not produce the same effect as young carrots, although the diuretic action is the same, the amount of urine passed being equally large in both cases But young carrots differ in chemical composition from old carrots As regards the alkalinity of the diet, I might add that we fed rabbits on hay The alkalinity of the urine was much more marked than after carrots Yet the toxicity of tartrate was about the same as on a diet of oats

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[9] Ellinger München med Wchnschr, 1905 **52,** 499
[10] Opie and Alford Jour Exper Med, 1915, **21,** 21
[11] Metchnikoff and Wollman Ann de l'Inst. Pasteur 1912 **26,** 825

Reducing the Number of Stillbirths—Report of an experiment in the care of expectant mothers with the idea of reducing the number of stillbirths and the deaths of babies during the first month has been made by the New York Milk Committee. Stillbirths were reduced 22 per cent and deaths during the first month 28 per cent. These figures were arrived at by a comparison of the results from the experiment carried out by the milk committee with corresponding statistics of the Borough of Manhattan during the period 1912 to the end of 1916 During this period 3,145 expectant mothers were enrolled and given care and supervision for an average of three and one-half months before and one month after confinement Each mother was visited at her home every ten days by a specially trained nurse, and by a physician whenever it was necessary Clinical consultation and physical examination and treatment for abnormal conditions before the birth of the baby and during the first month afterward were provided In the experiment 3,192 babies were born to 3,145 mothers Of these, 115 were stillbirths, and 86 babies died during the first month Five mothers died, a rate of 1 5 per thousand, as against a rate of 4 9 in the city at large. This was a reduction of maternal mortality of 69 per cent.

STATE ORGANIZATION FOR MENTAL HYGIENE *

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Hygiene comprehends more than conservation of health and prevention of disease A derivative of the Greek ὑγιής, ὑγίεια, latinized in "hygeia," it signifies soundness In ancient mythology Hygeia, chief daughter of Aesculapius, personified health Thus, etymologically "hygiene" is as broad in meaning as the term "health" itself, and may, properly, be used as a synonym, hence mental hygiene becomes another form of expression for mental health

Public agencies in matters of physical health are primarily concerned with prevention of disease and promotion of health, but, inevitably, they encounter insanitary conditions, causes and consequences of disease, its disabilities and its sufferers, whose correction, relief, restoration and care become imperative duties Nevertheless they are not designated commissions for correction of insanitary conditions or boards for infectious diseases, but are universally known as boards of alth, indicative of their beneficent purpose

In like manner, public agencies, in matters of mental health, have the same primary aims and duties as those concerned with physical health, and, likewise, inevitably are confronted with the great problems of care, provision, treatment and restoration of the afflicted with insanity, feeblemindedness and epilepsy Is there any greater necessity for designating such agencies committees of lunacy, or boards of insanity, than for substituting commissions for correction of insanitary conditions, or boards for infectious diseases, for the acceptable title boards of health? Would not the analogy of physical health suggest the appropriateness of boards for mental hygiene?

Insanity, feeblemindedness and epilepsy are end-products Their causes are rooted in heredity, environmental maladjustments and adverse social influences The obvious need of the insane, feebleminded and epileptic patient appeals to humane instincts and, naturally, first found partial satisfaction in institutional provision Time was when this summed up the total of public interest and recognized duty It appeared to be a saving of public money to evade as much of the burden of such afflicted as might be left on the back of the individual and the family, submerged in public unconsciousness But accumulation of end-products has gone on apace, until their increase, already enormous, presents a still graver outlook

There is a growing conviction that the policy of evasion and inaction is unwise and uneconomical, that the roots of mental disease and mental defect must be torn out of the community, that underlying causes must be sought by investigation and unremitting quest, that the mental patient must have early and adequate treatment, that the individual and family should be encouraged to accept and seek relief from this burden by the public under suitable safeguards, because its weight is thereby lightened, its strain is less likely to break down more unfortunates, its exactions cease to impoverish, its asperities are softened by measures of alleviation, and its menace of increase of defectives is less threatening

The separateness, up to recent date, of institutions from outside interests and activities has been notable Their self-absorption seemed necessary, because of the specialized nature of their work, its magnitude and the scantiness of resources for its accomplishment Gratitude and reverence are excited by the devotion and public service of founders and managers of institutions Gradually, however, institutional workers have become conscious of the need to reach out into the community to help and be helped in the wider field of preventive and constructive effort, conscious of their almost exclusive opportunity to acquire knowledge and experience fitting them to advise and direct in such effort, and conscious of their supplemental relation to social, health, educational, charitable and reformatory agencies, that discover and minister to such needs in the community at large

Mental hygiene is the synthesis of these institutional and communal forces in a common and inspiring purpose It turns away from sole contemplation of degeneracy, disease and death to constructive achievement, health and life Mental hygiene thus assumes a broad meaning, inclusive of all the duties and activities, arising out of

1 Conservation of mental health
2 Prevention of mental disease and mental defect
3 Investigation of their nature, causes, consequences, and measures of treatment
4 Interpretation and diffusion of such knowledge to the public and the medical profession
5 Promotion of the early recognition and treatment of such afflicted by the family physician who has had, during his medical course, sufficient instruction and clinical experience in psychiatry
6 Restoration of mental integrity and amelioration of adverse mental states by adequate hospital treatment
7 Institutional adjustments, affording as nearly normal conditions of living as may be, to promote happiness and usefulness of patients
8 Community organization facilitating their care at home under suitable safeguards against present dangers and future menace of reproduction of defectives
9 Determination of the causative relation of mental abnormality to poverty, delinquency, inebriety, sex immorality, and many social evils, with a view to their prevention
10 Provision for the care of the insane, feebleminded and epileptic in institutions, so far as necessary, and in the family, so far as permissible under supervision
11 Interchange by humane and efficient methods between state and national governments of such dependents, in order that they may be supported where they belong and the cost justly apportioned
12 Solution of the economic problems involved in these undertakings

The mere enumeration of these duties and activities is impressive in its revelation of the scope and importance of mental hygiene, the complexity of its relationship, the penalties of its neglect, and the necessity of correlation of all the forces of achievement along definite lines of responsibility in a militant attack on the whole problem

Time does not now permit an attempt at demonstration, but it is almost axiomatic, as well as in accord with the best thought and experience, that the appropriate unit of authority in these great undertakings is the state

The presentation of a concept of state organization, principles of administration, definition of duties and spheres of responsibility in a state system for mental hygiene in its broad meaning is the purpose of this

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* Read before the Section on Nervous and Mental Diseases at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

paper. In the early years of state government, these matters received but scant attention. Quite generally their supervision devolved on a single general board in conjunction with health, charitable and reformatory interests. Necessarily in small states such a combination may persist, but in the larger states, experience and recognition of the diversity of such matters, the highly specialized character, wide scope and importance of each have impelled toward the division of such a general body into separate boards of health, boards of correction, boards of charity and boards of insanity. Hence the initial step in forming a state organization is the creation of a state board for mental hygiene.

SUPERVISION VERSUS CONTROL

What should be the relation of such a board to the institutions and activities within its field? Should it be a supervisory, or a control relation?

The principle of supervision has been established in necessity and experience. Historical fact proves that care of the mentally affected in the home, the almshouse, the county asylum or the state hospital has been unsatisfactory without it. Improvement has necessitated and followed organized state supervision.

The first conception was advisory only. The supervising body, free from direct responsibility for local administration, stood in judicial attitude. Informing itself of the truth of a matter in controversy, it defended or censured local administrators according to the justice or injustice of public criticism. It has been a tower of strength in this relation. Its advice and suggestion, often from wide observation and lifelong service, have furthered the best progress. As a medium of spreading knowledge of activities and methods of one local administration to another, it has tended to coordinate them and unify their standards. The supervisory relation is honorable and attractive to the best citizenship, philanthropic, devoted to public service, able in affairs of business, aspiring to high professional ideals, sympathetic and broad in concept of duty to the unfortunate. Such service has been unpaid and is unpurchasable. Eventually, however, two weaknesses appeared in the form of supervision originally in vogue. In some localities, particularly Western states, local boards of administration did not always rise above considerations of self-interest or friendship in institutional appointments and purchases. In other localities, even the older states of the East, the effectiveness of general supervision became doubtful.

Both weaknesses invited the same remedy, greater control by supervising bodies and concentration of powers in smaller and fewer boards. The reaction, in some instances, drove the pendulum to the far limit, the single paid board of three members, abolition of local boards of administration, centralization of powers in one small body with absolute control without organized supervision. Although such a control regime might be tolerated as a temporizing expedient to oust politics and personal self-interest, it can never be acceptable as a permanent and satisfactory mechanism of achievement in this important field. Nevertheless it has not been devoid of good results. So far as good appointments have been made and stable tenure of office maintained, bad local situations have been improved and progress started. Indeed, initial boards have generally been progressive and efficient in early accomplishment. Experience, however, is revealing certain defects and weak tendencies.

The control regime narrows the circle of friends of these unfortunates in that it abolishes local and general boards of supervision with large membership, whereby many citizens gain their first knowledge of them and, thereafter, become active and lifelong champions of their interests. Such friends widen the circle to include others of their acquaintance, quicken public consciousness of the obligation to minister to the needs of such afflicted, and stand a strong defense against unjust and destructive criticism.

Wide and sustained interest in these classes is not merely humanitarian. It lessens the public burden by encouraging benevolence in their behalf and increasing willingness of relatives to receive them back from institutions to their homes.

The control idea is arbitrary and dictatorial in its nature and tendency, less likely than the supervisory relation to foster initiative, originality and development of local efficiency, and yet virility in any system of management has its roots in the men near the patients, working out their problems and needs, originating ideas and methods for their welfare, constituting the one indispensable requisite to progress. A stream cannot rise above its source. The great, outstanding barrier to achievement in mental hygiene is poverty in men of scientific instinct and ability, thoroughly educated in arts and science, trained in psychiatry and administration, absorbed in their vocation as a life work, encouraged and spurred on by helpful supervision.

At best a general board, supervisory or control, is distant from this fountain head. Neither can be an original source of ideas nor wisely attempt to initiate activities in local units. Their usefulness is restricted largely to correlating and standardizing such activities, disseminating knowledge, coordinating extrarelations and interrelations between local units, formulating general policies and inspiriting energies.

Ascendency of the control idea has had a trend away from supremacy of medical and scientific ideals toward lay standards of mere care, housing and utilization of productive labor, within a field preeminently medical in its requirements.

The economic folly of such a trend is shown in a situation recently revealed at the Pennsylvania Hospital. A daughter of a syphilitic father, who had died in an insane hospital, was received in the early stages of juvenile paresis, due to inherited syphilis. Investigation found the mother and five brothers and sisters also infected with syphilis, doubtless from the same source, the father. In such a case the absence of the medical and scientific spirit would stop effort with the humane care of the father, but its supremacy would also afford adequate study and treatment to prevent secondary infections and possibly sixfold increase of expense and untold suffering.

Is there any real economy in the immediate saving, if such there be, which ignores causes and prevention and invites disaster in the inevitable accumulation of end-products?

Furthermore, the control idea leaves other traces of degeneracy, as instability of service, lower average grade of appointments, less average experience and training in a specialized field, increasing liability to political dominance, and utter inadequacy of central organization efficiently to perform great local functions.

Finally, has the control regime, in reality, the justification of greater economy? Ponder the conclusions of Henry C Wright and be convinced by reading the detailed statement of his impartial and painstaking inquiry[1] and comparison of methods and results of administration of charities and correction in three great states Iowa, the oldest and, probably, best example of absolute control, free from politics, by prominent citizens of integrity and ability, New York, representing partial control and greatest persistence of medical standards, and Indiana, staunch adherent of the traditional board of state charities, without control powers, with only supervisory duties and the right to know, to advise, to cooperate and inspire, but, now as for many years, fortified in a membership of "men of exceptional judgment and devotion," who "selected and retained in the office of secretary" "men of marked ability, each of whom has gained a national reputation for knowledge and wisdom with regard to the management of the various classes of state institutions" Mr Wright affirms in his conclusions, after investigation, that

> Centralization in New York has secured low unit prices, but not economical administration of the institutions, the low unit cost has been largely offset by the delivery of goods of a lower grade than those contracted for, that Indiana secures an economical administration and very satisfactory results under the present form of supervision through the Board of State Charities Its institutions are managed more economically and more satisfactorily than the institutions in either Iowa with complete centralized control, or in New York with a partial centralization

IDEAL FORM OF ADMINISTRATION

Nevertheless, in my judgment, neither the pure supervisory idea, nor the pure control idea, is the best expression of an ideal form of administration Out of present conflict will evolve a happy mean, a stable balance, safeguarding, on the one hand, against arbitrary dictation, and, on the other, against tendencies toward indecision and ineffectiveness

The prerequisities of such an evolution are

1 A spirit of amity and deliberation, manifest in conference and cooperation between general and local administrative units

2 Definiteness of spheres of responsibility within such units, determined by mutual agreement or law

3 Absolute local control of executive details within such local spheres under principles and rules of procedure, appointment, methods and standards fixed by mutual agreement or law

4 Absolute control by the general board of extrarelations and interrelations and general policies of local units, under principles and rules of procedure fixed by mutual agreement or law

5 Right of initiative reserved to such local unit in its sphere of responsibility, but, if not exercised spontaneously, subject to suggestion, even compulsion, by the general supervising board

6 Requirement of approval, with right of modification and veto by the general supervising board acting under specific provisions of law, of main projects, initiated in local units, before they are undertaken

7 Unlimited power of the general supervising board to investigate, report and recommend as to any matter within any sphere of activity in any unit

8 All direct powers of the general supervising board specific and fixed by law

9 Creation, if found necessary, of a special judicial body, possibly the three senior justices of the state supreme court, to interpret principles and rules and enforce its decisions, under specific provisions of law

These general principles formulated on a workable basis, extended and perfected by experience, would constitute a democratic system of state administration, stable in balance, conducive to local efficiency and harmony It would be an adequate mechanism for the discharge of recognized public duties, but it would lack one essential element, supervision by an eye single to the public welfare, undiverted by direct responsibility, except for the truth and justice of its observations and utterances Pure supervision within both national and state fields would be best afforded by private agencies, organized under the leadership of the National Committee for Mental Hygiene, its state societies and allied associations, such as the New York State Charities Aid Association

Private agencies are potent in mental hygiene because they are free from politics, unfettered, and altruistic in their aims They touch many individuals, sources of energy and financial support, they are pioneers in fields of investigation to discover new principles, test their truth and utility and encourage their adoption by public agencies in common usage They diffuse knowledge, awaken public consciousness of needs and the obligation to meet them They create and mold public opinion in right form, which controls politicians, legislators and other public officials They supplement public agencies which, of necessity, are more conservative, because they are the established mechanism for accomplishing routine and essential duties, accountable for results of their recommendations, hesitant in initiative lest the confidence of the government be forfeited by advocacy of projects before their usefulness and economy have been demonstrated

Private agencies should be sympathetic and appreciative of the difficulties and limitations of public agencies They should bear in mind that constructive criticism, that contributes something to the solution of public problems, is the only helpful utterance

Such private and purely supervisory agencies should have the legal right to visit and inspect institutions and all activities within each local and general sphere of responsibility

They should be required to make, at stated intervals, reports of their findings with recommendations to the state board for mental hygiene The value of such reports and recommendations would be commensurate with the competency of trained visitors

Relief from political influence is the foremost requirement in any field of public endeavor Any system of administration without it is better than the most perfect theory under its domination Therefore the spirit of civil service should govern and protect all appointments in the field of mental hygiene

The state board for mental hygiene should have power to divide, and redivide as changing conditions may require, the state into districts for mental hygiene, each in charge of a district board

Each district should vary in extent and location according to existing centers of population, their prospective growth and needs, constituting a definite sphere of responsibility for all local administrative activities for mental hygiene in its broad meaning Briefly stated, each district should have its psychiatric hospital with associated preventorium, outpatient mental clinic with social service and educational bureau, its colony with outlying arms near populous centers and family care extension into neighboring communities, its infirmary for the feeble, aged, intractable and dangerous long resident patients suitably classified

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[1] Made for the New York State Charities Aid Association in 1909

As the district board for mental hygiene should administer these local institutional units and community activities and should coordinate and standardize extrarelations and interrelations and methods between them through responsible executive heads for each, so, in like manner the state board for mental hygiene should direct the larger activities and general policies within the state as its sphere of responsibility, and should coordinate and standardize extrarelations and interrelations and methods between districts for mental hygiene with other states and the national government, in conformity to the general principles before enunciated

State and district boards for mental hygiene should be appointed, constituted and organized substantially alike Each board should have a membership of four men and one woman, or, possibly five men and two women, for terms of five or seven years, respectively, nonpartisan in politics, if possible, but otherwise drawn in equal number, so far as practicable, from dominant parties

All members, except the chairman, should be appointed by the governor and be removable by him for cause, and such members should receive no compensation for services but payment for expenses actually incurred in the discharge of official duties The chairman of each board should be its chief executive officer, a physician, expert and experienced in psychiatry and mental hygiene, and paid an adequate salary The chairman of the state board should be appointed by the governor, but only on nomination of a majority of the other members of the board The chairman of a district board should be appointed by the board, but only after approval of the state board

All other appointments should be subject to civil service and made only on nomination of the chairman with approval of his board, either specific or as prescribed by its established rules

General methods of administration and supervision by each board should conform to accepted rules of efficient management in general Executive details should never be touched by superior authority except through the executive head responsible therefor, recourse for efficiency and control being had to advice, instructions, or, if necessary, removal of such executive head

Acquisition and accurate comparison of facts, ascertained and verified by expert investigators in each main field, are the potent agencies of supervising authority for developing efficiency and uniformity of methods and standards They inform, appeal to intelligence and reason, are constructive and helpful They eliminate personality and necessity of dictation and command cooperation Rarely, if ever, will they fail in achieving a legitimate purpose

The state board should hold regular and frequent conferences with district boards and district executives for interchange of knowledge and experience and their accurate comparison, out of which it should formulate and establish general policies, standards and methods under a uniformity which would recognize, in measurable terms, real differences and inequalities of local conditions

In organization for its own work the state board should provide for a support bureau headed by a psychiatrist, trained in matters of settlement and support, whose agents should investigate, in every instance, the claims for support of all patients admitted to state institutions under its supervision All patients found to be unjustly public charges should be removed to other states and countries, where they belong In like manner the financial ability of patients and their relatives legally liable for their support should be ascertained, of whom such amounts should be collected as they could pay without hardship Such investigation should not be allowed to delay the care of patients, but should be made after their admission to institutions Interchange of patients between districts for mental hygiene should be in charge of this bureau

The inception of a new institution should originate in the establishment of a new district for mental hygiene by the state board Thereafter, as in existing districts, the newly created district board for mental hygiene should take the initiative and responsibility, under the principles before enunciated, in the location, planning and construction of institutional units and buildings, subject, however, to approval, modification or veto by the state board, acting under specific provisions of law and the general policy established by it, as before described, in conformity to standard specifications as to arrangement, plan, capacity, space allowance, kind and qualities of materials, etc, in such definite terms as would assure uniformity for like conditions and purpose This would require a competent supervisor of construction as an officer of the state board

The state board should inaugurate a policy of initiative and adequate performance of its functions through expert investigation and supervision within the various fields of activity for mental hygiene in the state and its districts

Such a policy would necessitate a trained psychiatrist in the medical and clinical field, a scientific director of laboratories, medical and psychiatric research, a chief of social service, an expert accountant as supervisor of accounts and classification of expenses

Economical purchase and use of supplies should be standardized by a representative committee, composed of the chairman of the state board, its supervisors of accounts and construction, and the chairmen of district boards, superintendents of district institutional units and district stewards The district stewards, under the chairmanship of the state supervisor of accounts, should be the executive agency of the committee, whose other members should constitute the supervisory body

Ceaseless quest should seek the highest standards of medical, scientific and economic efficiency

Strictest economy consistent with such standards should govern public expenditure, because public funds for such purposes are limited, being rarely sufficient for bare necessities, and should be held as a trust for the unfortunate To sum up, the faulty planning and locating of institutions, all construction other than that which is plain and simple in design and pleasing in proportions, all overornamentation, failure to attach the chief importance to spacious, durable, sunlit buildings suited to the need, waste in administration, extravagance and graft in any form — all these must be abolished, since every dollar wasted is wrung out of the patients, their health and comfort, their living space, facilities for their treatment, knowledge of their malady, and its prevention and cure Lack of provision for such afflicted is almost universal, and their overcrowding in existing institutions is extreme in most states Such overcrowding is, probably, the greatest hamper to their proper treatment and the gravest menace to their safety and welfare Elimination of waste would go a long way in relief of this condition

Scanty expenditure, however, should not be mistaken for wise expenditure It is foolish to scrimp in original cost by impairment or deprivation of facilities and convenience of work A small administrative leak continuous for years will more than offset large initial outlay to prevent it

The field of mental hygiene is broad and rich in opportunity Its cultivation with diligence, forethought and economy would yield abundant harvest for the public welfare, but there are seeds and roots of evil with momentous portent, unless found and removed The state and district boards for mental hygiene hold the plow and should strike deep in furrows of investigation, search out causes and needs, formulate the practicable plans and policies to remove or satisfy them, arouse public consciousness of the obligation as well as expediency of action, and constitute always the sustaining energy of achievement

ABSTRACT OF DISCUSSION

Dr. Adolf Meyer, Baltimore If there are practical outlets such as Dr Copp has depicted, it will be a great help in making the medical student feel that he is working toward a well organized field, and that he will not have to make his whole career for himself or depend on the present limited system of institutional psychiatry alone

Dr E E Mayer, Pittsburgh Dr Copp's subject has such a practical aspect that I wish to emphasize that everybody should take home these ideas with him and work them out wherever there are state boards of insanity These boards everywhere are considered to be dealing only with derelicts The public is apt to look on a man as finished when he is put into an asylum A board of mental hygiene would look on the whole question with a different attitude and the public would see the broader problems of prevention and treatment I believe Dr Copp does not desire to eliminate established commissions and boards of insanity, but merely to enlarge their scope by a change of name Let us hope that added responsibility will be given to them also

Dr. L M Crafts, Minneapolis I do not know what the scheme of arrangement of the different parts of the speaker's plan would be, as Dr Copp did not have time to go into that in detail, but one important matter would be close articulation with the school board in every city and town, including a large element of control of the activities of both teachers and pupils Our school curriculums are overcrowded now, and our colleges and many school boards are advocating and moving toward all-year sessions This would subject even normal children to nervous strain, endangering their stability, and be entirely beyond the endurance of the neuropathic child

Dr Owen Copp, Philadelphia The main idea of my paper is that when we begin to talk of insanity, feeblemindedness and epilepsy, every one is depressed, but when we talk of mental hygiene it encourages the profession and the public to cooperate

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Birth Returns and the War—The experience of the nations at war has brought home the fact that war makes orphans It seems but fair, and one of the least of the things we might do for those who will give their lives for the nation, that we see to it that their children shall in later years be able to prove their parentage, their right to pension and inheritance, and their wives the right to widows' pensions for the rearing of the children in their own homes The prompt registration of every birth that occurs in the state becomes a patriotic duty, which no physician or midwife can in conscience shirk—H Chalmers, M A, (New York State) *Health News*

EXOPHTHALMIC GOITER AND OTHER FORMS OF PATHOLOGIC KINETIC DRIVE *

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Among the total of 2,169 operations for goiter which have been performed by my associates and myself, 1,020 have been for exophthalmic goiter This statement at once suggests the query, On what basis were the cases of exophthalmic goiter differentiated from the other forms of goiter? Our rule has been to class as exophthalmic goiter every case in which, at the time of operation, there are symptoms of increased basic metabolism not due to any current exciting cause, and in which these symptoms are relieved or cured by diminishing thyroid activity

THE RÔLE OF THE THYROID IN EXOPHTHALMIC GOITER

Among our cases we have seen no normal thyroids, hyperplasia being present in about 70 per cent , most of the remaining 30 per cent being adenomas, with a few colloid goiters (Marine, Graham)

That hyperplasia is not a cause but a concomitant effect of exophthalmic goiter is shown by the following facts of the total number of cases of hyperplasia of the thyroid at this moment existing in the United States, only a small, almost a negligible, percentage are co-existent with exophthalmic goiter, for hyperplasia of the thyroid is incident to pregnancy, to adolescence, to many infections, especially tuberculosis, and to cretinism Hyperplasia of the thyroid is no more the cause of exophthalmic goiter than it is the cause of pregnancy, of tuberculosis or of adolescence In each and all of these conditions, hyperplasia is an end-effect, not a cause Here the analogy ends, however, for although resection of the thyroid does not terminate pregnancy, does not cure tuberculosis, does not modify the phenomena of adolescence, it does improve or cure every case of exophthalmic goiter

If the thyroid does not initiate exophthalmic goiter, then by what means does its excision improve or cure the disease? We have elsewhere pointed out that any excitant of increased basic metabolism, emotion, exertion, infection, etc , when acutely applied, aggravates exophthalmic goiter, and the more intense the case of the disease, the more is it affected, and conversely, the greater the deficiency of the thyroid, the less effective are such excitants as emotion, exertion and infection, the effectiveness of these excitants diminishing progressively with the deficiency of the thyroid to the neutral stupid state of myxedema

In other words, as the thyroid governs the rate of energy transformation, therefore as the thyroid activity is diminished, the range of metabolic activity will be diminished also

THE RÔLE OF THE SUPRARENALS IN EXOPHTHALMIC GOITER

The excitants of increased metabolism lead to increased thyroid activity, but, as we have shown elsewhere, they cause also an increased output of epinephrin Moreover, the symptoms of exophthalmic goiter are identical with those produced by the com bined administration of epinephrin and of thyroid extract, plus those due to the deterioration produced by the disease in certain organs Among organs thus damaged are the heart, the brain and the liver How then shall we decide which symptoms are due to the suprarenals and which to the thyroid? Epinephrin increases basic metabolism as is evidenced by increased temperature it increases the force and frequency of the heart beat increases the blood pressure, throws the blood from the inner larger arterial trunks to the periphery dilates the pupils produces sweating and increases respiration But epinephrin alone does not lower the thresholds of the brain, does not cause nervousness and does not cause trembling or insomnia These are caused by thyroid secretion These two groups of phenomena, together with the modified function of damaged organs, as the liver, heart and brain make up the sum total of exophthalmic goiter

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* Read before the Section on Surgery, General and Abdominal, t the Sixty Eighth Annual Session of the American Medical Associatio New York, June, 1917

MODIFICATION OF THE KINETIC DRIVE

Neither the suprarenal nor the thyroid has any direct communication with the external or the internal environment except through the nervous system and through hormones Both the suprarenals and the thyroid respond adaptively to changes in the internal and the external environment through the mediation of the nervous system and hormones therefore the kinetic drive may be modified in four different ways

1 By eliminating or diminishing the external and the internal driving stimuli
2 By depressing the sensitiveness of the nervous system
3 By diminishing the amount of thyroid tissue
4 Probably by diminishing the suprarenal tissue

There are no other organs or tissues that can be controlled in like manner by modifying the internal and the external environments Therefore in the interrelation of the suprarenals, the thyroid and the nervous system, we may find the key not only to the pathologic physiology of exophthalmic goiter, but also to certain fundamental normal physiologic processes as well

If an individual with exophthalmic goiter could be made to hibernate like a bear he would probably come out cured, for when the driving mechanism, the brain, rests, then the organism as a whole rests, and if the rest is long enough, certain pathologic states tend to revert to the normal state

If the thyroid activity is depressed by the ligation of arteries and nerves, by destructive injections or by excision, then the activity of the nervous system at once slows down, because the fabrication and output of specialized activating products is diminished and in consequence action currents will be diminished Consequently the power of the brain to drive the various organs of the body is diminished, and by so much is the drive diminished

OTHER FORMS OF PATHOLOGIC KINETIC DRIVE

Worry, fear, grief, infections, overwork, adolescence, autointoxication, etc, are the common exciting causes of exophthalmic goiter Any one of these excitants may just as readily cause neurasthenia, cardiovascular disease, cardiorenal disease or diabetes Let us consider that protean disease neurasthenia It is produced by environmental stimuli that give rise to exophthalmic goiter, it is relieved by rest by controlling work, by eliminating worry, infection, autointoxication, etc If the exciting causes of exophthalmic goiter and neurasthenia, and the medical treatment are practically identical, what then is the essential difference between neurasthenia and exophthalmic goiter? In many cases of pathologic drive the diagnosis by one physician will be light exophthalmic goiter, by another neurasthenia It may be compared to the distinction between wealth and riches — they are apparently varying degrees of similar processes If the foregoing is true, then it should follow that in exophthalmic goiter as well as in neurasthenia the symptoms will be mitigated by excision of a part of the suprarenal tissue That this is probable is indicated by the early clinical results in five cases of neurasthenia in which one suprarenal and the anatomically excessive thyroid tissue were excised It is still too early to reach any final conclusion The course pursued in these cases is reported here only as a suggestion for further study, and does not stand as a recommended treatment Among the other phenomena noted was the almost complete and immediate disappearance of the excessive sweating From the clinical data in certain cases of exophthalmic goiter, therefore, in which resection of the thyroid was followed by increased nervous stability and increased body weight, while there remained a flushed face, sweating and an increase in the frequency and force of the heart beat, we may infer that while the thyroid symptoms of the disease were relieved, the suprarenal group persisted It may be that the excision of part of the suprarenal tissue will supply the complete cure for such cases as these Certainly in this study may be foreseen a possible explanation and treatment of the end-results of the overdriving of the organism

NOTE ON THE OPERATIVE TREATMENT OF EXOPHTHALMIC GOITER

Let us now return to the all inclusive and protean kinetic drive — exophthalmic goiter These hypersensitive patients may be killed by fear, even by worry, by light infection, by moderate work, by slight injury, or by surgical anesthesia, hence they require anociated *treatment in the broadest sense*, and in severe cases the operation itself must be graded These frail and explosive patients are carried through the operation most securely as follows by the highly specialized nurse anesthetist whom the patient securely trusts and does not fear, by local anesthesia with novocain, by feather edge dissection, by gentlest handling In the most serious cases not only the first but each step of the graded operation is performed with the patient in bed — ligation in bed, lobectomy in bed The operating room goes to the patient Moreover, in serious cases we now leave the wound open, guarding against infection by applying dressings moistened with neutral solution of chlorinated soda for from twenty-four to forty-eight hours, the wound being then closed under analgesia in bed That is to say, we literally make operating "rounds," giving a devitalizing injection of hot water or of quinin and urea hydrochlorid here, doing a ligation there, performing a lobectomy in another room, closing a wound in still another And with each additional precaution, with each anociated step goes a still further lowering of the death rate and of postoperative disturbance In turn we can successfully handle patients who are moribund, all patients thus managed experience more prompt and secure clinical results, and finally other patients, with the assurance of safety and of slight discomfort, come with tranquillity instead of dread

With the progressive unraveling of the mysteries of pathologic physiology in the clinic and in the laboratory, we see appearing more and more clearly a new conception of surgery and physiology, based on total behavior and biologic adaptation On this basis, health and disease differ only in that health is the result of complete adaptation, while disease implies a failure to achieve complete adaptation

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EXPERIMENTAL HYPERTHYROIDISM *

EDWARD C KENDALL, Ph D
ROCHESTER, MINN

The fact that nitrogen elimination is much increased by administration of the thyroid hormone suggests that one method of investigating thyroid activity would be to study the results of an intense nitrogen metabolism

About a year ago, I began to administer amino-acids to animals with an accurately timed intravenous injection extending over many hours During the first part of this investigation the animals were kept under ether and were thyroid-parathyroidectomized The active constituent of the thyroid was given sometimes at the beginning and sometimes after the injection had proceeded for some time Later, the animals were trained to lie quietly on the table and were injected without pain and with no distress symptoms, by inserting a needle into the external saphenous vein Animals may be injected in this manner for many hours under ideal physiologic conditions

A review of all the data obtained after the injection of more than 100 animals shows that the results may be placed in two groups In the first group, which comprises a very small number of the total, a typical result was as follows

1 A continuous and extremely large flow of urine

2 A temperature that did not drop below normal at any time, and when the maximum reaction was attained, would rise very high, sometimes as high as 114 degrees

3 A pulse always regular, strong, and increasing in rate, possibly with tachycardia, and, as a maximum response was reached, ranging from 300 to 350 and above

4 The respiration deep throughout As the severity of the reaction increased, the respiration became panting In the crisis it was very rapid and vigorous

5 Sensitiveness of the animals to touch At first these animals were not sensitive to touch As the injection proceeded there would be muscle twitchings and tremors, always beginning in the foreleg, the neck muscles, the eyelids and the facial muscles These slight tremors slowly increased in vigor and frequency until, by a gentle touch with the hand, a violent general tetany would be produced, or a convulsion with rigidity of every muscle, opisthotonos, etc During the spasm the respiratory muscles were contracted and involved in the general convulsion so that the animal became cyanosed The general picture could not be differentiated from parathyroid tetany, idiopathic tetany, or from certain phases of epilepsy

Necropsy of these animals frequently showed hemorrhages throughout the muscles, hyperemia of the intestines, a suprarenal so hyperemic that it resembled a blood clot, a thymus so engorged with blood that it was liver-colored, and a pituitary in the same condition as the suprarenal

The second group of results, comprising by far the majority, obtained by injecting amino-acids into dogs, was in the typical cases the direct opposite of the first group described

1 The urine was always of small volume and generally acid

2 The temperature remained normal if no anesthetic was used If ether was given, the temperature sometimes dropped as low as 92 degrees

3 The pulse was very slow, irregular and feeble

4 The respiration was feeble and indifferent throughout

5 The animals never became sensitive to touch They did not show twitches or tremors, and instead of a touch producing tetany, they were difficult to arouse

It will be seen that, in the first class, there was a violent and extreme reaction resulting in crisis and death In the second class, there was no less a reaction to the injection but the result was profound depression All degrees of intensity and combinations of these two types of reaction have been obtained The animal may at first be depressed and only slowly and gradually develop a vigorous response with tetany, etc, or, occasionally an animal will show a quick and fair reaction, which will pass off and be followed by depression Some animals will withstand an injection of amino-acids for many hours, and show neither depression nor excitation One dog has been injected three different times, once for ten hours, and is still well and apparently normal The question arises What are the factors determining which effect the injection of amino-acids will produce? One factor is the diet If the animal has been heavily meat fed, the result of an injection of amino-acids is depression If the animal has had a diet poor in meat and has been starved for from twenty-four to forty-eight hours, an active response may be expected

The influence of the thyroid hormone was, when first considered, very confusing, disappointing, and in fact, paradoxical The most constant condition in so-called hyperthyroidism is an increased metabolism and increased irritability with no signs of depression It was, therefore, surprising to find that if an animal was injected with the thyroid hormone previous to the injection of the amino-acids, the result was not an active response, but a decided depression I have never seen an immediate response to the administration of the thyroid hormone in any animal This is true of *normal* animals and of those being injected with amino-acids

The general conditions which it is possible to produce by an intense nitrogen metabolism having been established by a large number of experiments, steps were taken to try to find a cause for these conditions in some chemical constituent of the blood and urine The most striking difference in the urine between the two groups of physiologic response is the volume The volume of the urine of an animal injected with amino-acids that is responding may be enormous One dog of 11 kg actually passed 1,740 c c in one hour The next abnormal finding in the urine is the percentage of the total nitrogen in the form of urea Urea normally forms 80 to 85 per cent of the total nitrogen in urine The urea in the urine of dogs in a toxic condition may be as low as 15 per cent of the total nitrogen With the low ureas it was found that the percentage of ammonia was, as a rule, very low The importance of these observations concerning the ammonia and urea was not at first realized, but after many dogs had been injected it became apparent that the toxic symptoms in the animal were always accompanied by a very low percentage of the total nitrogen as urea and ammonia, and an attempt was made to relate this finding with the tetany

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* From the Mayo Clinic

* Read before the Section on Surgery, General and Abdominal, at the Sixty Eighth Annual Session of the American Medical Association, New York, June 1917

One explanation of the constant relation between the tetany and the low urea and ammonia in the urine could be that there is some substance (let us say x) which is an intermediate compound between ammonia and urea and this substance is highly toxic to the animal organism If the substance x were produced from ammonia faster than it could be converted into urea or other nontoxic compounds it would increase in its concentration in the body to the point of producing toxic symptoms In all the work concerning continuous injection of amino-acids into dogs ammonia and urea were determined within ten minutes of the time the samples were collected Now, if the urine from dogs with toxic symptoms contained some substance, x, which would be converted into urea in the body, would any of this substance be converted into urea outside the body simply by allowing the urine to stand? This was tried, and to our surprise and satisfaction it was found that on redetermining the urea after the urine had stood twenty-four hours, the amount had increased as much as 100 per cent At the same time the ammonia did not change, and in some cases it was somewhat lower after standing twenty-four hours than when at first determined It was further found that the increase in urea on standing roughly paralleled the toxic condition of the dog By means of a very high rate of nitrogen metabolism and an extreme diuresis, we had succeeded in separating one of the intermediary compounds in the formation of urea Furthermore, there is the strongest evidence that this pre-urea compound is concerned in the production of the toxic symptoms by an injection of amino-acids

Having related the violent reaction and tetany of the first class of reactions to the pre-urea compound, it was not at all difficult to show that in the second class when there was apathy and depression, there were not only no traces of the substance x but the ammonia content of the blood and urine was very high

Therefore, it seemed probable that the greatest factor in determining which type of reaction any animal would give was whether or not ammonia could be properly metabolized If the conversion of ammonia into substance x proceeded too slowly, resulting in a high concentration of ammonia throughout the body, depression resulted, if ammonia was converted into substance x too rapidly, faster than it could be converted in urea, irritability and tetany resulted

Although not yet proved beyond controversy, it seems probable that the agent by which ammonia is supplied to the body is the thyroid hormone We have some evidence that the agent converting the pre-urea substance into urea is the parathyroid We were, therefore, prompted to look among the other ductless glands for the agent which converts ammonia into substance x All that is known of hyposuprarenal activity suggested that the probable source of the agent which converts ammonia into the pre-urea compound is the suprarenal cortex The depression and loss of nerve tone and terminal intoxication following suprarenalectomy somewhat resembles the results in which depression was produced on injection of amino-acids On the other hand, the great stimulation, the increase in the tone of the nerves finally resulting in irritability and tetany, filled out the requirements for an excess activity of the agent that converts ammonia into substance x Could not these two extremes be explained by hypo-activity and hyperactivity of the suprarenal cortex? We, therefore, tried to determine whether or not the suprarenal cortex could convert ammonia into substance x A cat was etherized, the blood and suprarenals were removed and a small amount of ammonium carbonate was added to the suprarenals and to the blood, the suprarenals being ground in physiologic sodium chlorid solution The blood converted a small amount of the ammonium carbonate into something not urea The suprarenals even in high dilution, converted practically 100 per cent of the ammonium carbonate into something not urea

Thus, on our first attempt, we apparently demonstrated that the suprarenal cortex furnishes an enzyme which, in the tissues and even in the blood, is capable of converting ammonia into something not urea Other cats were treated similarly Their blood, suprarenals, muscles and liver were tested in the same way Entirely negative results were obtained for all these tissues Finally, suprarenals from beef, freshly killed, were tested Not only did the suprarenals fail to convert any ammonium carbonate, but the suprarenal substance itself contained a small amount of ammonia We, therefore, had one strikingly positive result and a number of negative results For some days we were perplexed and disappointed It suddenly occurred to me that the conditions under which the first animal had been killed were somewhat abnormal I was not present in the room at the time, but a chance remark recurred to me that there had been two dogs in the room when the cat was brought in, that these two dogs had frightened the cat and had barked at her for possibly ten or fifteen minutes The cat was then placed under the etherizing jar, immediately etherized and the suprarenals removed The possibility, therefore, still existed that the first results were correct and that the suprarenal cortex showed its activity only after it had been stimulated, in this case by fear The generous frightening of other cats rapidly followed and we soon repeated the first results In the blood, in the suprarenals and in the tissues of some of these cats, large amounts of the enzyme which acts on ammonium carbonate were present We then tried electric stimulation of one suprarenal and not the other, and here again in the first animal experimented on we produced a distinct activity in the suprarenal which had been stimulated, while the other was without activity Subsequent attempts to repeat this have shown that the stimulation of the suprarenal by electric impulse is difficult to accomplish We have tried various other means of stimulation Etherizing an animal with the cone, allowing the animal to struggle, produces but slight increase in suprarenal activity as shown by the blood, but more activity does result if a series of etherizations is carried out

It is known that animals that have had the nerves supplying the suprarenals severed do not die as a result of the operation. Therefore, the suprarenal must be stimulated by some substance in the blood as well as through the nerves. If it is the function of the suprarenal cortex to act on ammonium carbonate, it would seem probable that ammonium carbonate in the blood is the substance which stimulates the gland. We, therefore, tried to inject ammonium carbonate into the blood directly. Instead of producing the desired toxic condition with increased sensitiveness to touch and tetany, in some cases following the injection of ammonium carbonate, we produced the profound depression, cyanosis, and all the symptoms presented by the second group of results mentioned in connection with the injection of amino-acids. Analysis of the blood showed that a large amount of ammonia was present. The significant condition in the animals injected with ammonium carbonate, linking them with those animals that did not respond to the injection of amino-acids, was the respiration. When ammonium carbonate is injected into an animal, the respiration becomes either feeble and indifferent or else deep and vigorous. It seems highly probable that ammonium salts of other acids than carbonic cause the depression, and that as long as these acids are not oxidized and burned to carbonate, the animal continues in a state of depression and the suprarenals are not activated. When, however, ammonium carbonate reaches the suprarenal, it produces a vigorous stimulation.

Unlike the thyroid whose active constituent, the iodin compound, is normally present, and unlike the suprarenal medulla whose active constituent, epinephrin, is normally present, the active constituent of the suprarenal cortex cannot be demonstrated in normal animals except after the gland has been stimulated.

Concerning the conditions which must be present before the suprarenal cortex manifests its activity, it seems essential to have a vigorous oxidation going on within the animal. An animal with a feeble, indifferent respiration and a slow pulse responds to an injection of ammonium carbonate with the state of depression. In an animal that is maintaining a high degree of metabolism, although the first injection of a small amount of ammonium carbonate may not produce a violent tetany, there is, however, an unmistakable response. The respiration immediately becomes deep and more rapid, there is an increase in the pulse rate, slight restlessness and irritability.

These two types of reaction are accompanied by very conclusive chemical evidence, that is, in the first case the urine contains a large amount of ammonia and in the second instance only traces. We can now follow the condition of the animal in the chemical laboratory, two floors removed from the experimental room, in which the animal is being injected, and while we cannot determine the intensity of the reaction, a glance at the analyses of the urine for ammonia and urea is sufficient to tell whether the animal is going into a tetany or a state of depression.

In an animal recently injected, the urinary ammonia was found to be high. It suddenly decreased, remained at a lower figure for three quarters of an hour, and then rapidly increased to a larger amount than before the drop. Inquiry as to the condition of the animal showed that just at this time it had gone through a violent spasm of tetany followed by an improvement which was later followed by a state of depression.

Many of the most puzzling results obtained in the first months of this investigation are now explained. The reason dogs with a high protein intake always went into a state of depression is they did not convert the ammonia into the pre-urea compound fast enough, that is to say, the suprarenal cortex was not in an active state. The fact that the injection of the thyroid hormone previous to the injection of amino-acids produces a result of depression is explained in the same way. It furnishes evidence that thyroid activity in the absence of a simultaneous suprarenal cortex activity does not produce the usual so-called hyperthyroid symptoms but, instead, a condition of depression. It has long been noted that the administration of the thyroid hormone produces a great variety of clinical results. Some persons are extremely sensitive, responding to very small amounts, others are very resistant. There are on record certain cases of chronic nephritis in which the administration of the thyroid hormone produced a profound depression, a state of uremia and death.

In order to obtain a so-called hyperthyroid reaction, hyperactivity of the thyroid is only one result that must be produced, accompanying this, increased activity of the suprarenal cortex is just as essential.

THE CONSTITUTIONAL DISTURBANCES WHICH COME WITH CHRONIC GOITER *

CHARLES N. DOWD, M.D.
Surgeon to the Roosevelt Hospital
NEW YORK

The most dramatic thyroid problems surround the subject of exophthalmic goiter. The overwhelming character of this malady creates profound impressions on those who observe it, and continually leads to exhaustive studies and paintaking investigations in an effort to master its problems. We may sometimes turn from those who are overwhelmed by excessive toxins to those who live year after year with diminished efficiency and curtailed activities because their thyroids are abnormal. Those who suffer from chronic goiter often need attention as definitely as those who have distinct exophthalmic goiter.

In October, 1915, I reported a study of 137 goiter patients treated by members of the surgical staff of the Roosevelt Hospital. Twenty-five of these patients were classed as showing toxic symptoms in the course of chronic goiter. Since that time I have operated in twelve additional similar cases. This group of thirty-seven cases, selected from a total of 181, represents as fair a selection as can be made and gives for study a definite group which is large enough for the purposes of this paper.

The average noticed duration of the goiters in the patients studied was ten years; the average duration of the more disturbing symptoms was one and one-tenth years.

During the earlier period of their goiters, the patients were disturbed by the mechanical presence of the growth, by its unsightliness, and perhaps by

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

its pressure They may also have had diminished capability in following their ordinary occupations without realizing it

During the later acute period, they were distinctly incapacitated for vigorously following their ordinary duties The pulse was usually accelerated, they tired easily, and were "nervous," uneasy and apprehensive Some had slight tremor, others had various digestive disturbances, most of them had increased discomfort from the presence of the goiter and felt various degrees of pressure on the trachea and adjoining parts of the neck According to the commonly accepted standards, these were not cases of exophthalmic goiter, yet the patients were more or less incapacitated Most of them attended to duties of some sort but were incapable of prolonged and continued exertion without undue fatigue

Patients of this type have been observed and described during the recorded period of goiter study and goiter treatment Pierre Marie,[1] Charcot and Gautier may be mentioned among those who make reference to them Möbius classed goiters which had become associated with exophthalmic goiter symptoms as "formes frustes" and differentiated them from fully developed exophthalmic goiter He also distinguished primary and secondary exophthalmic goiter, the former developing with a thyroid gland previously normal, the latter developing in connection with a chronic goiter His secondary cases were usually chronic and often incomplete

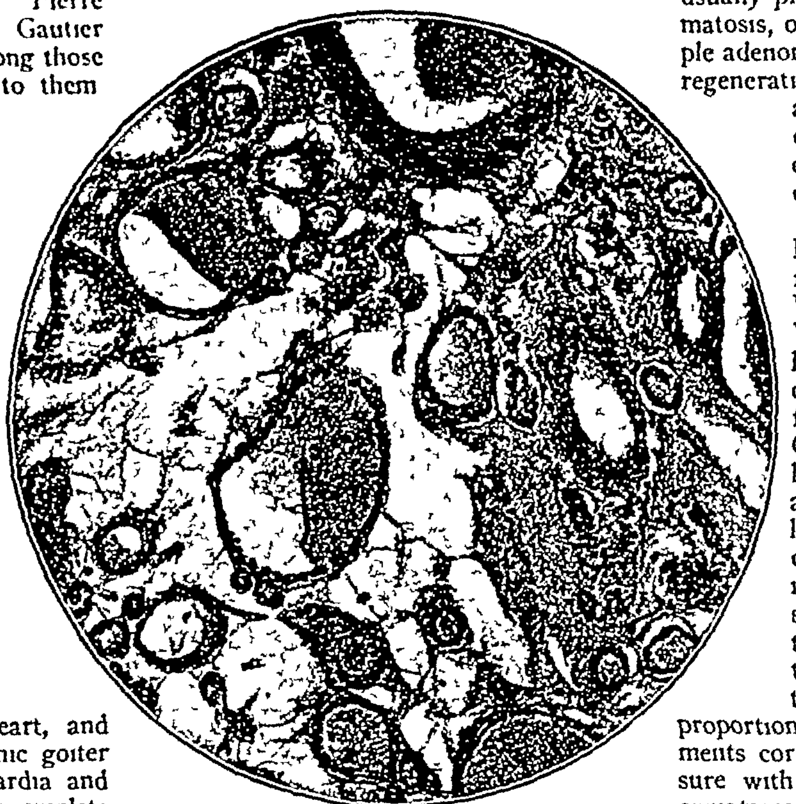

Fig. 1 —Section of thyroid from a girl of 19 whose goiter had been present for three years or more She had a pulse of from 100 to 120 The patient in this case and in the case illustrated in Figure 2 rested preliminary to operation, side by side on the same ward balcony and seemed about equally ill.

Kraus has described the goiter heart, and Stern considers chronic goiter patients, with tachycardia and irritable heart, as incomplete forms Kocher asserts we can produce exophthalmic goiter by giving iodothyrin in excess to goitrous patients Berry[2] discusses the subject of secondary exophthalmic goiter, applying the term to the incomplete forms considered above Plummer[3] states that a young person with adenoma of the thyroid has a definite chance of developing at a later time symptoms so similar to the syndrome associated with hyperplastic thyroid that the best trained diagnosticians are constantly confusing the two conditions

It is thus evident that our little group of patients corresponds closely to similar groups which have been described by numerous observers

It is difficult to distinguish those symptoms which arise primarily from thyroid disturbances from those which are the result of other influences It is possible for patients to have functional or organic cardiac disease from causes not associated with the thyroid Different forms of indigestion and asthenia may come from various causes The menopause is particularly a time when various functional disorders occur, and in the group of thirty-seven cases there would, of necessity, be some patients in whom a thyroid enlargement had less constitutional effect than in others

The pathology of these goiters is interesting Wilson[4] has made exhaustive studies on this subject He states that the thyroid from a patient who has developed exophthalmic goiter, with exophthalmos, after years of simple goiter, shows advanced colloid change in most of the glands and scattered areas of hyperplastic parenchyma, that the thyroid of a patient who has symptoms of thyrotoxicosis slowly developing through a period of years, with a preponderance of cardiac symptoms and little or no exophthalmos, usually presents diffuse adenomatosis, or encapsulated multiple adenoma (usually fetal), or regenerations of previously atrophied parenchyma But such cases are not true exophthalmic goiter

With the aid of Drs Mortimer Warren, Baldwin Mann, William B Clark and William C White, we have studied the microscopic sections from these thyroids Colloid has regularly been present in large amount, and epithelial elements in various degree, but in no instance were they sufficiently hyperplastic to resemble the thyroids of exophthalmic goiter The proportions of the epithelial elements corresponded in a measure with the severity of the symptoms, but there were many exceptions to this rule Some of the most severe cases showed very scanty epithelium and abundant colloid in the examined parts

There are many methods of treating such patients Rest, without doubt, is very important Various forms of medication, the Roentgen ray, boiling water injections, and different forms of hygienic procedures are in common use But an increasing number of patients are seeking relief in surgery The safety of the operation and the quickness of the result appeal to them strongly

The main purpose of this paper is to study the results of operation on this group of patients About two thirds of the enlarged glands were removed at these operations The posterior capsules and adjacent part of gland tissue were regularly left in position

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[1] Marie, Pierre, cited by Falta, Wilhelm The Ductless Glandular Diseases, Philadelphia, P Blakiston's & Co, p 95

[2] Berry Lettsonian Lectures, Lancet, London March 1 1913

[3] Plummer Am. Jour Med. Sc., 1913, 146, 793

[4] Wilson, L. B Northwest. Med., January, 1913 Am. Jour Med. Sc. 146, 780

In one instance, boiling water was injected according to the method of Porter, and with excellent result

In studying the later histories of this group of patients

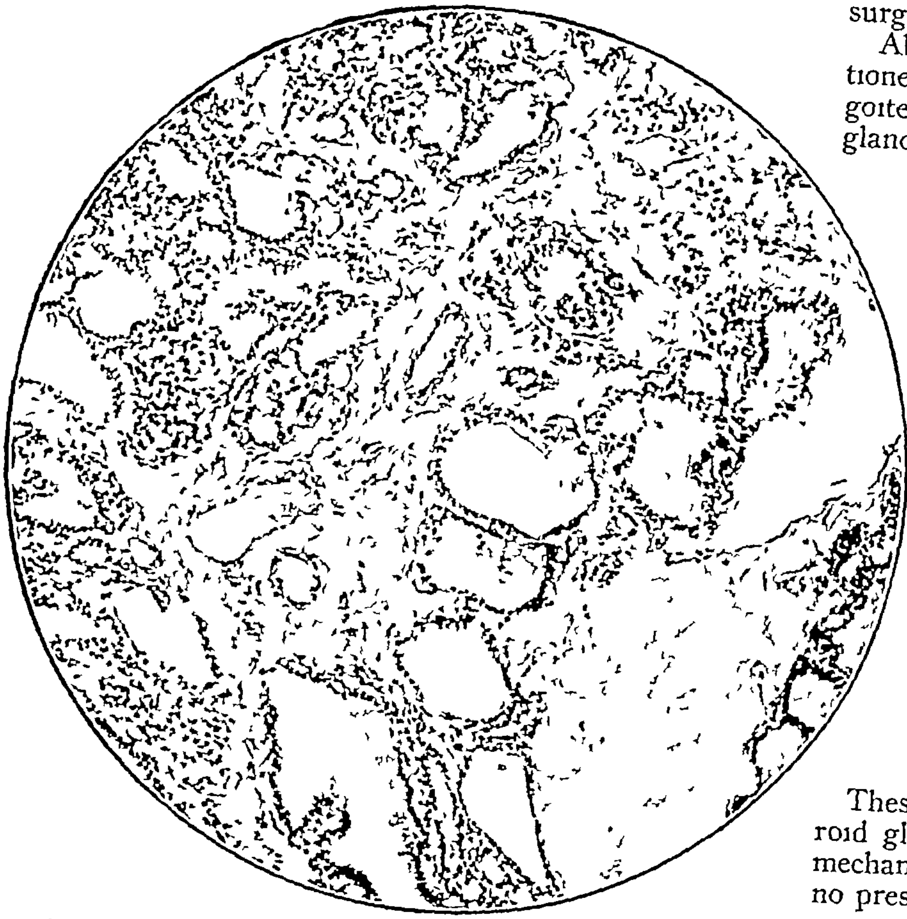

Fig 2—Section of thyroid from a girl of 19 whose goiter had been present for three years or more She had a pulse of from 100 to 120 The patient in this case and in the case illustrated in Figure 1 rested, preliminary to operation, side by side on the same ward balcony, and seemed about equally ill This patient, however, had a slower convalescence than the other girl

One has been observed fourteen years, one has been followed into the fifth year, five have been followed into the fourth year, six have been followed into the third year, twelve have been followed into the second year, and seven have been followed into the first year

All made good recoveries from the operation Twenty-seven were reported free from symptoms and in excellent health, eight are very greatly improved, two, respectively, eleven and four months after their operations, are still resting, and are far from well One of these two had very complex symptoms, including attacks of migraine which could not be referred to the thyroid The symptoms of the other resembled those of exophthalmic goiter, although her goiter was of long standing and was reported colloid In one or both of these cases something besides the thyroid was influential in producing the symptoms

The group then shows 73 per cent apparent cures, 21 6 per cent marked improvement, and 5 4 per cent slight improvement

There have been some very remarkable patients in the group, patients whose symptoms were really severe They were fast becoming a burden to their friends and to themselves, but have been so restored to health as to be practically in their former normal condition

Dr Charles H Mayo has called attention to the fact that some of these patients pass into the very worst type of exophthalmic goiter, and I can verify this by personal observation If the development can be stopped by a simple operation in the early stages of this change, it is an important achievement for surgery

Abscess of the thyroid gland should also be mentioned in considering the complications of chronic goiter The abundant blood supply of the thyroid gland, and its common degenerations, would lead one to expect evidences of blood borne infection Such evidences, however, do not appear as frequently as in the kidney, or even in the parotid salivary gland, but they do appear occasionally

Among our thyroid patients there have been four such examples One was fatal from an overwhelming streptococcus infection, two others had very severe constitutional symptoms, but finally recovered after liberation of the pus, the fourth, who came to the hospital earlier than the other patients, illustrated the development of staphylococcus infection in chronic goiter After two weeks of increasing tumefaction, fever and discomfort in the neck, the thyroid showed a large intracapsular abscess in each lobe There was no apparent communication between the abscesses A large portion of the glandular tissue was destroyed by the suppuration Prompt recovery followed the opening of the abscesses

These cases illustrate the vagaries of enlarged thyroid glands Such growths may prove to be merely mechanical nuisances, pressing where there should be no pressure, and becoming large, unsightly and heavy They may be accompanied by various disturbing symptoms, such as discomfort and apprehension, for nervous patients with colloid goiters who have learned the

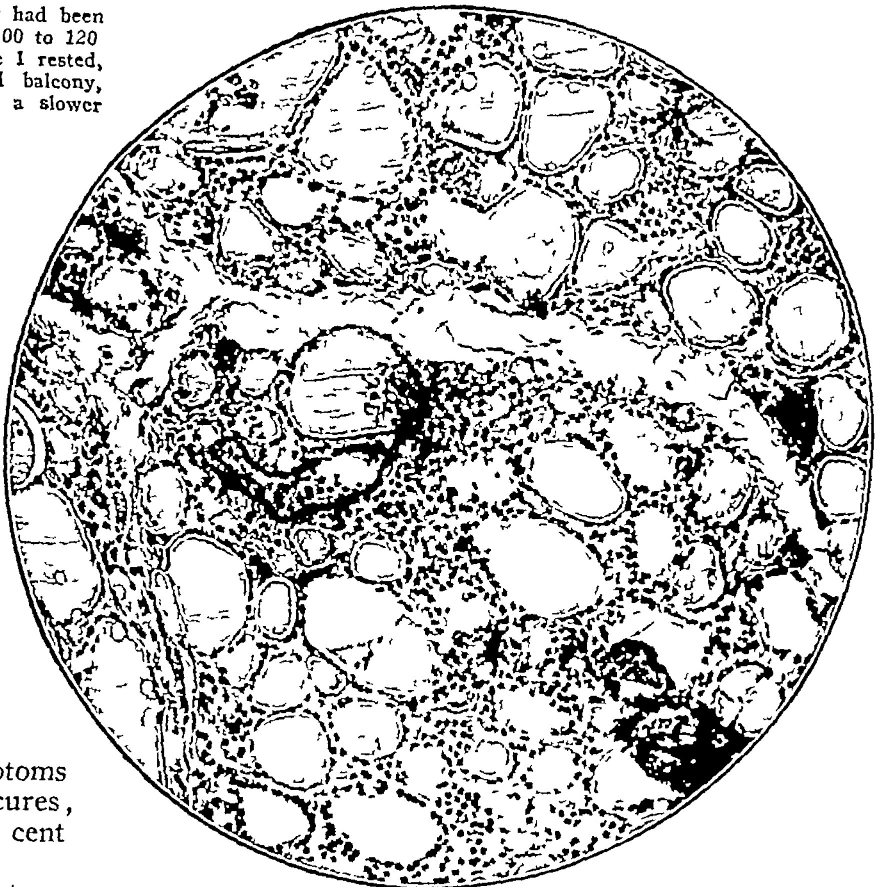

Fig 3—Section of thyroid from a woman of 27, five years' enlargement She had a pulse of 130 There was slight exophthalmos, and decided, but not extreme, loss of strength There was a marked temporary reaction from partial thyroidectomy She made a satisfactory recovery The pulse remains at about 80

symptoms of hyperthyroidism may suffer from fear of their developing Other organic and neurotic disturbances may simulate exophthalmic goiter in these patients and complicate the diagnosis and the treatment It is to be especially noted that there is a large group of patients in whom thyrotoxic symptoms develop in the course of chronic goiter, apparently dependent on the goiters themselves These may produce a state of semi-invalidism and may even progress to pronounced invalidism It is important that they should be recognized while yet within the proper therapeutic limit

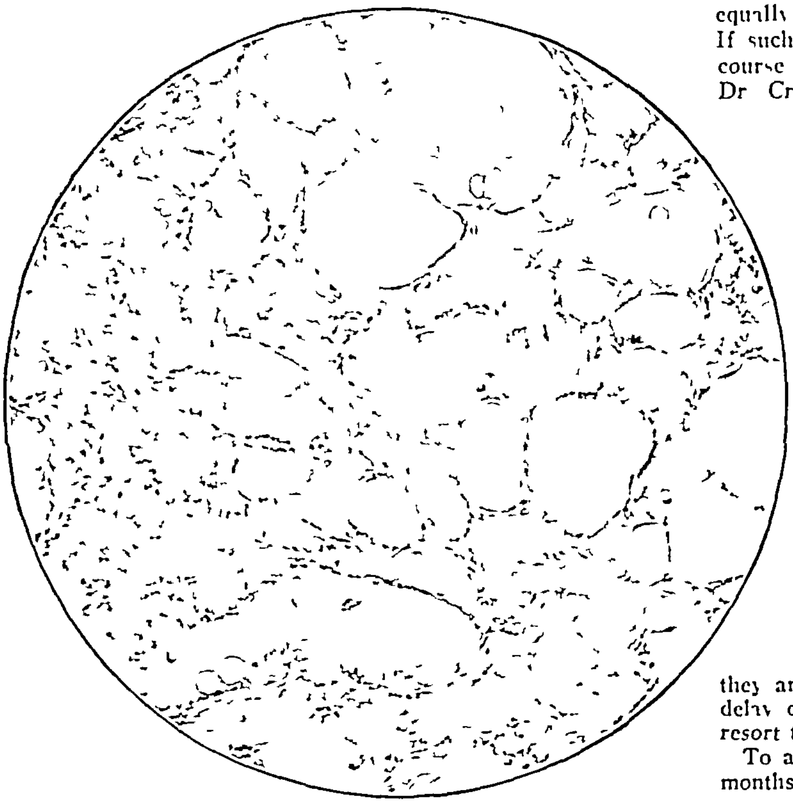

Fig 4—Section of goiter of twenty two years duration in a woman of 47 There were disturbing constitutional symptoms the pulse was 116 There was a prompt return to normal health after partial thyroidectomy

The results of operation on these patients are particularly encouraging The great majority of them can thus be restored to good health

The occasional development of abscesses is a complication which might be expected in these large degenerating glands The seriousness of such a condition is largely due to the strong capsule which surrounds the gland and encloses the septic process

One must also think of the possibility of cancer in connection with chronic goiter This condition apparently is a rare coincidence The few cases of undoubted cancer which I have seen have developed rather acutely

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS CRILE, KENDALL AND DOWD

Dr. A J Ochsner, Chicago In 1,200 cases in which I have removed the thyroid gland I have personally examined the microscopic sections of every gland, and wherever hyperthyroidism was present invariably found portions of the thyroid gland which showed active epithelial cells What Dr Dowd has said regarding the indication for treatment is, of course, very clear and very correct If you have a patient in whom this condition is permitted to go on you will ultimately have a serious injury to the nervous system and equally serious injuries to the muscular system and the heart If such a condition can be relieved by a safe operation, of course the operation is distinctly indicated The facts that Dr Crile does not increase the hypersecretion due to the nervous element, that he does not traumatize unnecessarily that he does not increase the injury to the patient in any way, are of great importance It seems that the postoperative hypersecretion has something to do with the absorption of material secreted into the stomach during the operation At any rate, we have found in cases of severe hyperthyroidism in which I have had to operafe before the condition had subsided that the postoperative hyperthyroidism could be reduced enormously by making gastric lavage with water at 105 F immediately after the operation was finished I never operate in these cases of extreme hyperthyroidism at the top of the wave

Dr. Martin B Tinker Ithaca, N Y Dr Dowd has mentioned that these people are frequently treated by rest Roentgen ray and boiling water, and attention should be called to the fact that a large number not getting relief from these legitimate medical means resort to quacks During the past two years fully 50 per cent of patients who have come under my care have been treated by osteopaths chiropractors or other irregulars Because the condition is not immediately dangerous to life, they are sometimes encouraged by their medical advisers to delay operation The reasons why they should be urged to resort to surgery have been clearly brought out by Dr Dowd

To add emphasis, I would report my experience for three months this year during which time three patients coming from various sections of our state, with very toxic s, died in their beds without any ever Patients overestimate the relief of goiter, they un

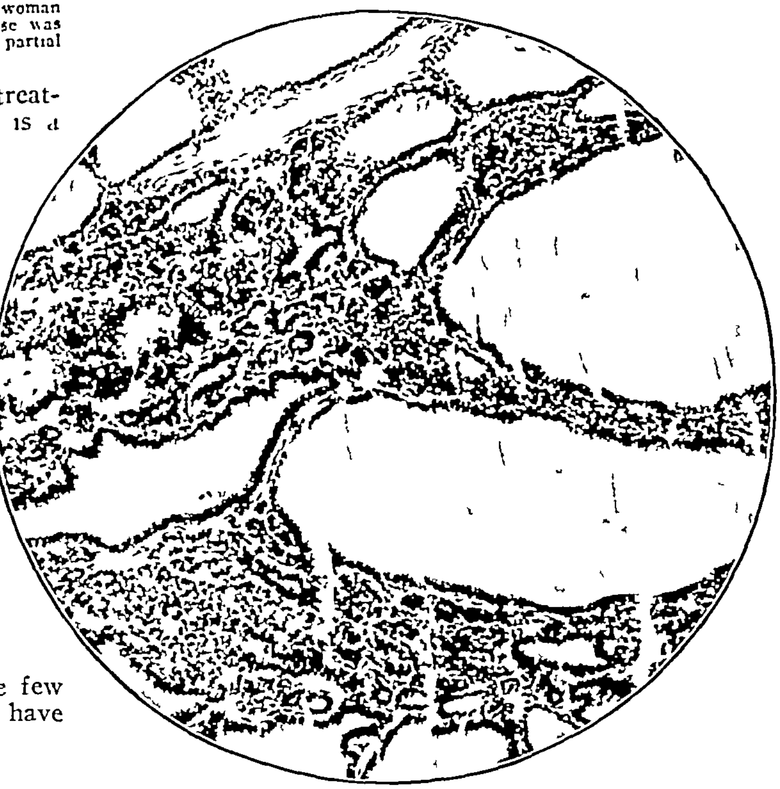

Fig 5—Section of goiter of fourteen years duration from woman of 32 There were moderate constitutional symptoms She made a satisfactory recovery after partial thyroidectomy

ease Scarcely a week goes by that a patient does not come into my office for the reason that some member of the family has died from goiter

My remarks are mostly to emphasize points well brought out by Dr Dowd, who also called attention to the fact that these growths are transformed by hyperplasia into the worst forms of toxic goiter He has spoken of the danger of abscess Any man who has done much goiter surgery must have seen several such cases He has emphasized the importance of the changes in the circulatory system, which in many patients go on to an incurable condition, they are possibly able to live, but they are not useful members of society as they should be, they are handicapped for life as the result of this disease

Dr Dowd has spoken of the frequency of pressure symptoms Among these are not only distress in breathing, and loss of voice, but, in certain cases, inability to swallow I had one patient who was unable to swallow solid food for seven years, another for three years The importance of cancer of the thyroid should also be urged In one year I saw four of these patients, and there was not one of the four but had carried iter from ten to twenty-five that is to say, they had le goiter, readily curable ration, and if ly handled the iant change would have occurred

Dr Solomon Solis-Cohen, Philadelphia Contrary to surgical op ontinue to be- goiter in goiter, be- incident and main factor, iot be treated ly, except in a proportion of cases ess than 10 per cent out when the goiter is itself the disease, when pathologic change in yroid gland con- the main lesion, the *only* right way deal with it is to get rid of it by excision or ligature, or some other destructive means, as soon as possible Should toxic symptoms develop in these cases, then the indication becomes still more urgent to remove the goiter, because that is the source of evil

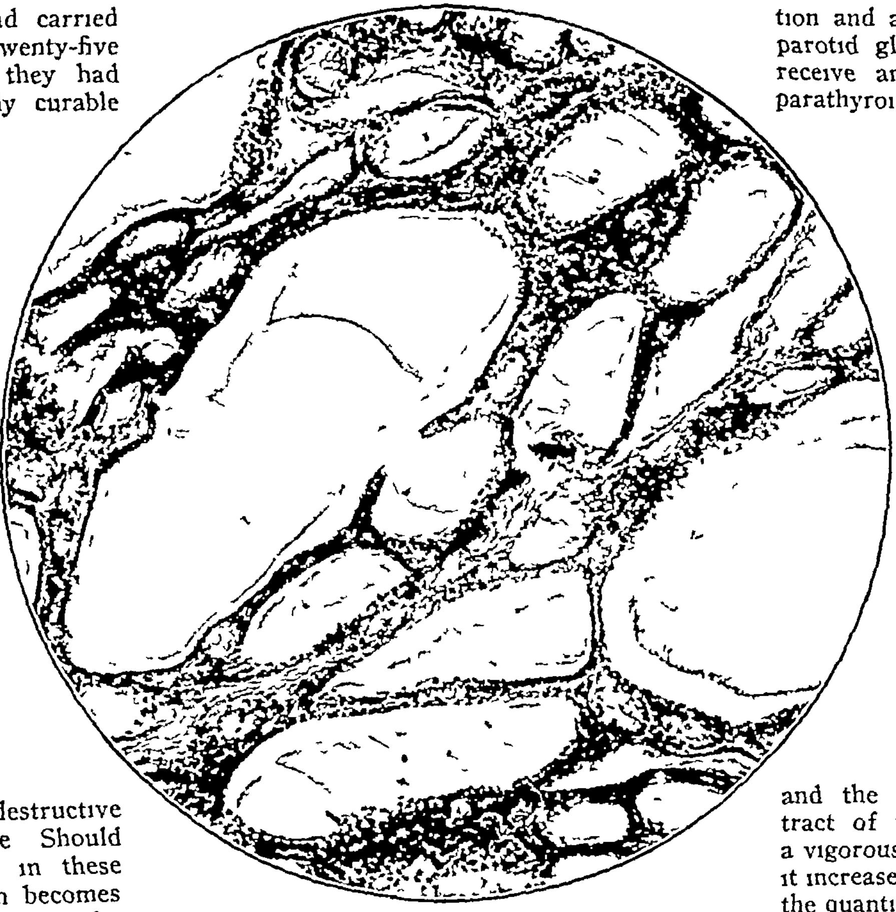

Fig 6—Section of large goiter of four years' duration in a woman of 47 There were pronounced constitutional symptoms, which still continue four months after partial thyroidectomy

I was especially interested in the demonstration of the connection of the parathyroid—its inhibitory role, so to speak—in this trinity of endocrine disturbances giving rise to certain toxic phenomena In practice I often observe the secondary disturbances which are here attributed to the suprarenal cortex and a preurea compound coming from the suprarenal cortex

In the medicinal and hygienic treatment of a case of exophthalmic goiter, the patient recovering under these measures may retain or develop certain symptoms, the type of which may be aptly illustrated by the tremor which is considered one of the cardinal features in the diagnosis, and which may possibly, indeed probably, be attributed to compromising of the parathyroids and production of this highly important compound to which our attention has been called In such instances, I have found empirically, that the administration of parathyroid substance—and I mean *genuine* parathyroid substance—is the best means of controlling such symptoms The treatment was based of course, on the familiar observations of tetany following removal of the parathyroids and similarly to the role of calcium in such cases, it is sometimes found that the association of calcium bromid or other calcium salt with the parathyroid is better than the parathyroid alone in controlling the tremulousness and excitement of these patients In the course of a persistent treatment of exophthalmic goiter by medicinal means we sometimes find that a patient who is rapidly improving suddenly begins to show high excitement, perhaps fever, to lose weight, to have tachycardia return or increase, and apparently to do very badly I have had reason to believe that in some such instances the result has been due to too rapid disintegration of the pathologic thyroid gland or at least too rapid flooding of the circulation with thyrotoxic products under some of the measures adopted Perhaps it is this pre-urea compound which is at work At all events, the simple withdrawal of medicaments, while keeping the patient at rest and continuing our general hygienic measures, has in so many cases been followed by subsidence of the untoward symptoms that the conclusion has been forced on us that we have here cause and effect and not simply coincidence

Dr John Rogers, New York A little while ago I examined a parathyroid preparation and about one half of it was parotid gland So if you do not receive any results from feeding parathyroid you can draw the natural inference Dr Kendall of Rochester has described *the* active principle of the thyroid I would like to suggest that it be called *an* active principle So far as I know, the active principle of an organ should produce immediate and constant demonstrable changes in one or more other organs of the body I have tested this product of Dr Kendall's on several occasions and can say that in the stomach it produces an immediate demonstrable response, I think also on the blood pressure The stomach is very interesting in that it is supplied by the sympathetic and the vagus An aqueous extract of the thyroid will produce a vigorous response in the stomach, it increases peristalsis, and increa the quantity and acidity of secr apparently by stimulation of vagus This product of Dr dall's will produce about half response in the stomach that extract of the gland will when given in the same do Some substances derived from the thyroid are have beneficial effect, and some are toxic

One of the most noticeable effects in thyroid is the susceptibility of the patient to fatigue I of any published experiments which demonstrat of the thyroid to fatigue so well as some I watched and which have not yet been published to isolate the rectus abdominis muscle in the stimulate it and cause it to unite its contractio It will fatigue in about four hours, so that ti the smoked drum will show a fall in the power c If the thyroid gland is excised at the beginning c ment the fatigue can usually be induced in tw to one-half hour After it has been fatigued, of thyroid extract will immediately cause the fatigue to disappear That is the most marked of the energy production of the thyroid shown

Dr E C Kendall Rochester Minn Dr Rogers remarks concerning what should be called *an* active constituent and not *the* active constituent will probably not be answered for a number of years I base my statement that it is the active constituent of the thyroid on the fact that it is the compound that contains iodin and many workers have already shown that the activity of the gland is in proportion to the iodin content I should like to point out the fact that the injection of the active constituent of the thyroid in pure crystalline form produces absolutely no apparent effect immediately I have never seen in any animal an immediate response, however if several daily successive injections are given we can produce a most intense reaction It is this long latent period which is misleading in thyroid investigations Any result which is obtained immediately on the injection of preparations from the thyroid is not due to the action of the iodin-containing compound The latent period after administration of the iodin compound has been one of the most puzzling things to clear up in the investigation I have been carrying on and I think it has been adequately cleared up by showing that it is necessary to bring into response other endocrine glands one of which is the suprarenal cortex If the suprarenal cortex is not activated a totally different chain of results is obtained than when it is activated

Dr Charles N Dowd New York We do not live in a goiter district In this particular locality I think we do not see the same proportion of exophthalmic goiter among our goiter patients as is seen in some other localities We are continually struggling with the problem of patients with enlarged thyroid glands and moderate constitutional symptoms They are semi-invalids unable to put normal effort into anything which they undertake This study has been made in the effort to help these people Those who have discussed the paper have aided materially in this effort

THE DIAGNOSIS OF TUBERCULOUS LARYNGITIS *

JULIUS DWORETZKY MD
OTISVILLE, N Y

The importance of the early diagnosis of pulmonary tuberculosis has been fully established The early detection of the pulmonary lesion has in the majority of instances enabled us either to cure the lesion or at least check its progress

The early diagnosis of laryngeal tuberculosis, however, is still being neglected, and too often we meet the advanced laryngeal cases, in which conservative treatment is of no avail, while radical treatment is also useless because of the existing extensive destruction of tissue Such involvement of the larynx could often be avoided if treatment were instituted in the early infiltrative stage Thus it could safely be said that, as in pulmonary tuberculosis, the prognosis and the successful treatment of tuberculous laryngitis depends largely on early diagnosis

In this paper, however, the discussion will not be limited to the diagnosis of the early lesion, but will include all stages and phases of laryngeal tuberculosis

Since the diagnosis of laryngeal tuberculosis is made by the actual viewing of the larynx, it can readily be seen that the recognition of a lesion in the larynx is much easier than the detection of the pulmonary lesion This would especially apply to the early cases The diagnosis will also be helped materially if it is borne in mind that tuberculosis of the larynx is invariably secondary to pulmonary tuberculosis

Through the cooperation and constant watchfulness on the part of the clinic or family physician, laryngologist and the sanatorium physician, tuberculosis of the larynx can be diagnosed early

The clinic or family physician with a little practice can diagnose early cases of laryngeal tuberculosis if a routine laryngoscopic examination is made on every patient with pulmonary tuberculosis, even when laryngeal symptoms are entirely lacking Thirty-five per cent of the cases of tuberculous laryngitis studied had either no symptoms referable to the larynx or else they were very slight and could easily be attributed to other causes It is therefore evident that unless a careful examination of the larynx is performed on every patient with pulmonary tuberculosis, a number of cases will escape attention

The laryngologist may often be misled in the diagnosis of the early lesion because of the absence of a history of tuberculosis, and the excellent general condition of the patient Such errors can be avoided by having a patient presenting a doubtful lesion in the larynx undergo a thorough chest examination, and by repeatedly examining the sputum Only after persistently negative examinations may tuberculosis of the larynx be excluded

The sanatorium physician is in a position to diagnose laryngeal tuberculosis in all stages and phases He has the advantage of having the patient under his constant supervision, and of possessing accurate knowledge of the patient's pulmonary condition Therefore, if every patient is examined on admission and subsequently at regular intervals, no case of tuberculosis of the larynx should ever escape the observation of the sanatorium physician

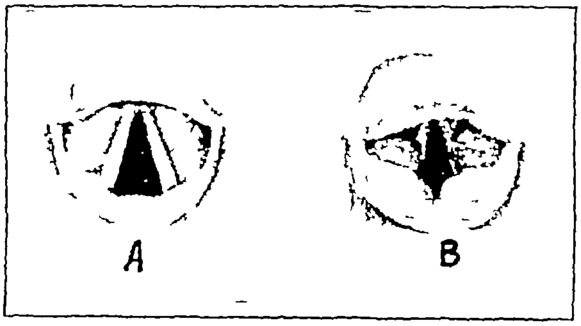

Fig 1 (Case 1) —*A* Acute tuberculosis of the larynx *B* condition of the larynx six weeks later

As in most other diseases, these patients present subjective and objective symptoms The subjective symptoms are those caused by the lesion in the larynx as well as those associated with the pulmonary lesion The objective symptoms are those of pulmonary tuberculosis and the physical findings on laryngoscopic examination In this paper laryngeal symptoms and signs only will be considered

The present study included 150 cases of laryngeal tuberculosis, of which eighty-six were classified as early, and sixty-four as moderately advanced and advanced

SYMPTOMS

The symptoms of tuberculosis of the larynx can be conveniently divided into two groups first, those of the early stage, and second, those of the moderately advanced and advanced stages

The most common symptom among the eighty-six cases of early disease was hoarseness, occurring in eventy-one, or 82 6 per cent It often began with light huskiness of the voice in the morning, gradually disappearing during the course of the day It varied from a slight change in the voice quality to a low pitched rasping sound The onset of the hoarseness was, as a rule, insidious in the chronic cases, while it was more sudden in the acute and subacute cases When the onset was insidious, the patient was often unaware of the development of this symptom, and only by careful questioning could the date of the onset be established In early cases the hoarseness is most commonly due to infiltration of the posterior commissure or of one or both cords, and often to a combination of both Cases with marked papillomatous growths in the upper portion of the posterior commissure with no alteration in the quality of the voice were often seen Thus the hoarseness depends largely on the location of the tumefaction If it is above or below the cords, the voice may be quite normal

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* From the Municipal Sanatorium Bureau of Hospitals, Department of Health City of New York

* Read before the Section on Laryngology Otology and Rhinology at the Sixty Eighth Annual Session of the American Medical Association, New York June 1917

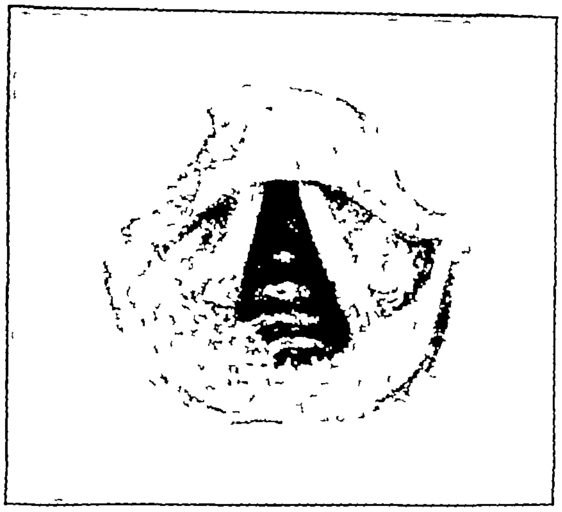
Fig 2 (Case 2) —Acute tuberculosis of the larynx

The next most frequent symptom, or rather combination of symptoms, was the sense of discomfort in the larynx It was present in fifty-one, or 59 3 per cent, of the cases This sensation was vaguely and variously described as a lump in the throat, desire to clear the throat before talking, consciousness of the throat irritation as if caused by a hair lodging in the throat, dryness, hypersecretion, burning, rawness, sticking pain, etc

TABLE 1—SYMPTOMATOLOGY NOTED IN 150 CASES OF TUBERCULOSIS OF THE LARYNX *

Symptoms	Early Cases or Stage 1		Advanced Cases or Stages 2 and 3	
	Number	Per Cent.	Number	Per Cent
Hoarseness				
Slight	32	37 2	4	6 3
Moderate	23	26 8	17	26 5
Marked	16	18 6	40	62 5
No hoarseness	15	17 4	3	4 7
Total	86	100 0	64	100 0
Dysphagia	2	2 3	11	17 2
Dysphonia	1	1 2	11	17 2
Aphonia	3	3 5	12	18 8

* Sense of discomfort was present in 51 or 59 3 per cent. of the early cases and in 55, or 86 per cent, of the advanced cases This was absent in 35, or 40 7 per cent., of the early cases and in 9, or 14 per cent, of the advanced cases

Dysphagia, dysphonia and aphonia are uncommon among early cases of tuberculous laryngitis Dysphagia was found to exist in only 2 3 per cent of the early cases, dysphonia in 1 2 per cent, and aphonia in 3 5 per cent

Of the sixty-four cases with pronounced lesions, fifty-two were of Stage 2 and twelve were of Stage 3 The symptomatology in this class is more definite and often pathognomonic Hoarseness was present in sixty-one of the cases, or 95 3 per cent Sense of discomfort was present in fifty-five, or 86 per cent Dysphagia and dysphonia in eleven, or 17 2 per cent, and aphonia in twelve, or 18 8 per cent, of the cases

From the foregoing, it appears that hoarseness is almost always present when the involvement is extensive, and the classic symptoms, such as dysphagia, aphonia and dysphonia, although more common than in the early cases, are far less common than generally supposed

The physical findings in tuberculous laryngitis will depend, first, on the stage of the disease, whether early or advanced, second, on the type of the lesion, whether acute, subacute or chronic The early or incipient cases are characterized by infiltrative changes, the advanced cases by extensive infiltration with ulceration The acute cases are characterized by the presence of macroscopic tubercles, soft edema with rapid destruction of tissue, the subacute cases, by pseudo-edema due to proliferative changes and the formation of granulations, the chronic cases, by hyperplastic changes, marked fibrosis and slow course

PATHOLOGIC MANIFESTATIONS

Anemia of the Larynx—This is often spoken of as a sign of tuberculosis This sign is present in acute cases in which we have formation of tubercles, marked edema and interference with circulation The acute type of laryngeal tuberculosis, however, is not the most common type Only thirteen out of 150 patients examined had an acute involvement of the larynx, and therefore anemia is rather an uncommon feature of tuberculosis of the larynx in general When anemia is present in other than acute cases, it is usually due to a general anemic condition of the patient

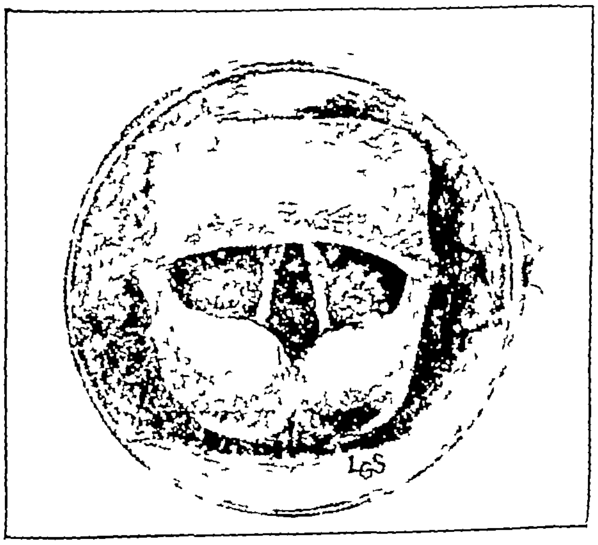

Fig 3 (Case 3) —Acute tuberculosis of the larynx

Congestion—This condition is more common than anemia It is present in the great majority of the subacute and chronic cases The congestion may be due to a catarrhal condition preceding the tuberculous lesion, or may be caused by the tuberculous lesion itself

Infiltration—By this term is implied inflammatory changes caused primarily by the tubercle bacillus The part affected is congested and increased in size The edema may be either of the soft variety, such as seen in the acute case, or of the hard indurative kind, is seen in the subacute and chronic cases Soft edema occurring in the arytenoids usually produces the characteristic pear-shaped swelling When the process is chronic there is a marked proliferation of connective tissue, and the infiltration becomes hard Infiltration is most common in the posterior segment of the larynx but may be seen elsewhere

Ulceration or Necrosis—Degeneration of tissue usually occurs after tubercles coalesce and caseate A typical recent ulcer has a grayish appearance, while a chronic ulcer may be red, due to the formation of granulations Ulcers are most commonly seen at the posterior portion of the vocal cords, the vocal process, the posterior commissure, and the rim of the epiglottis

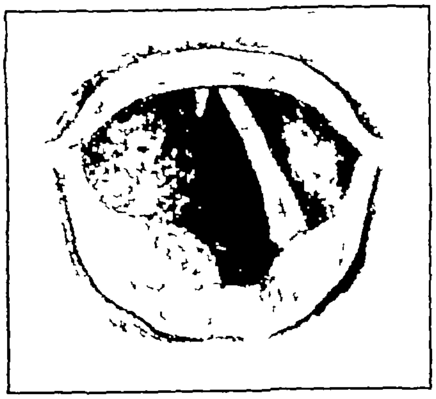

Fig 4 (Case 4) —Acute tuberculosis of the larynx.

Tumefaction—This may appear before or after ulceration takes place Tumefaction before ulceration is usually due to edema and is most common in the arytenoids, the ventricular bands, the laryngeal surface of the epiglottis and the aryepiglottidean folds

TABLE 2—PHYSICAL SIGNS OBSERVED IN 150 CASES OF TUBERCULOSIS OF THE LARYNX *

	Early Cases or Stage 1		Advanced Cases or Stages 2 and 3	
	Number	Per Cent.	Number	Per Cent
Interarytenoid Space				
Affected	78	90 7	63	98 4
Not affected	8	9 3	1	1 6
Total	86	100 0	64	100 0
Vocal Processes				
Affected	41	47 7	57	89 0
Not affected	45	52 3	7	11 0
Total	86	100 0	64	100 0
Arytenoid cartilages				
Affected	45	52 3	36	56 3
Not affected	41	47 7	28	43 7
Total	86	100 0	64	100 0
Vocal cords				
Affected	17	19 8	46	71 9
Not affected	69	80 2	18	28 1
Total	86	100 0	64	100 0
Epiglottis				
Affected	13	15 1	23	36 0
Not affected	73	84 9	41	64 0
Total	86	100 0	64	100 0
Ventricular bands				
Affected	16	18 6	20	31 3
Not affected	70	81 4	44	68 7
Total	86	100 0	64	100 0
Aryepiglottidean folds				
Affected	6	7 0	18	28 1
Not affected	80	93 0	46	71 9
Total	86	100 0	64	100 0

* The cases were grouped into three clinical types There were 13 or 8 7 per cent. of acute cases 66 or 44 per cent subacute and 71 or 47 3 per cent chronic cases.

When it follows ulceration, it usually takes the form of granulations, papillomas or tuberculoma Granulations are most common when ulcerations are present Papillomas and tuberculoma usually occur at the posterior commissure

PHYSICAL SIGNS

The frequency with which a part of the larynx was found to be affected was in direct proportion to the amount of trauma that part received as a result of its functional activity and its location

Interarytenoid Space—The earliest and most frequent seat of disease was the posterior commissure This was found to be involved in 141 out of 150 cases examined Of the eighty-six cases of early disease seventy-eight, or 90 7 per cent, showed involvement of the posterior commissure, while in the sixty-four cases of advanced lesions it was involved in sixty-three, or 98 4 per cent

The earliest change in the posterior commissure consists of hyperplasia of the mucous membrane On partial approximation of the cords, this hyperplastic mucous membrane takes on a wrinkled appearance A streak of mucopus is often seen adhering to the space, but this merely signifies that there is a discharging focus in the lungs It is often present without any demonstrable tuberculous lesion in the larynx The usual color of the hyperplastic mucous membrane is gray, although occasionally it is red As the lesion progresses, a median furrow is formed which is readily perceived on a partial approximation of the cords following a deep inspiration At this stage a lateral furrow, as described by Casselberry,[1] is also frequently observed The formation of these furrows is due to the constant creasing of the diseased mucous membrane during all expiratory acts A little later, if the disease is not arrested, the process will go on to ulceration Of 141 cases affected, thirty showed ulceration of the posterior commissure The ulcers were usually shallow and of gray appearance Often there is an exuberance of granulations with the formation of papillomas or tuberculoma The papillomas vary in size and shape, but are usually of the broad base type The amount of discomfort caused by a papilloma in the space depends on its location If situated right between the true cords, the symptoms, such as hoarseness, aphonia and dysphonia, are marked while if situated above or below the cords, symptoms may be lacking Patients with papillomatous growths in the space almost always clear the throat before talking This is usually due to the presence of the growth or to the streaks of mucopus adhering to its rough surface Conditions such as nasal stenosis, chronic pharyngitis, accessory sinusitis, bronchiectasis, lung abscess, syphilis and asthma will cause a hyperplasia of the posterior commissure simulating tuberculosis When these conditions, however, are eliminated, interarytenoid hyperplasia with or

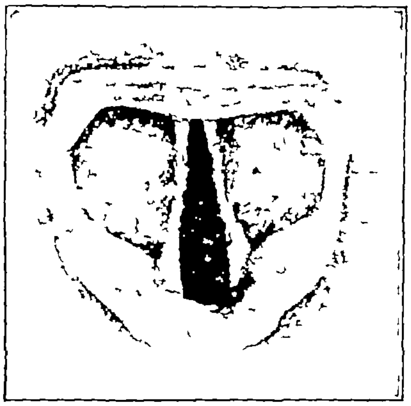

Fig 5 (Case 5) —Subacute laryngeal tuberculosis.

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[1] Casselberry W E The Recognition of Early Changes in the Larynx in Tuberculosis The Journal A. M A., Nov 15, 1913, p 1789

Case 5—P S, aged 22, was in an advanced stage of phthisis, and examination of the larynx revealed infiltration with superficial ulceration of both ventricular bands, erosions of both cords and swelling of both arytenoids One year ago the patient had an acute involvement of the entire larynx with pronounced dysphagia Amputation of the upper two-thirds of the epiglottis was followed by marked local and general improvement The diagnosis was subacute tuberculosis of the larynx following the acute type

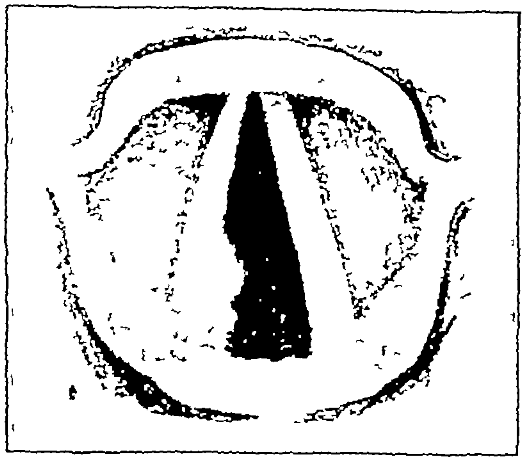

Fig 12 (Case 12)—Chronic tuberculosis of the larynx

Case 6—P F, aged 21, complained of hoarseness A broad-base papillomatous growth was found in the posterior commissure of the larynx It represented the characteristic rugged appearance with adhering streaks of mucopus, and there was infiltration and slight ulceration of the free edges of both true vocal cords This patient was in an advanced stage of pulmonary tuberculosis The diagnosis was subacute tuberculosis of the larynx

Case 7—A P, aged 30, in whom pulmonary tuberculosis was moderately advanced, showed a slight thickening at the posterior commissure of the larynx, with infiltration and ulceration of posterior portion of both true cords especially the left There was also slight hoarseness The diagnosis was subacute tuberculosis of the larynx

Case 8—O B, aged 26, complained of hoarseness and occasional discomfort in his throat Examination revealed infiltration of the posterior commissure with mammilated appearance of the mucous membrane, and infiltration and erosion of the posterior two thirds of both true cords The patient had a moderately advanced type of pulmonary tuberculosis The diagnosis was subacute tuberculosis of the larynx

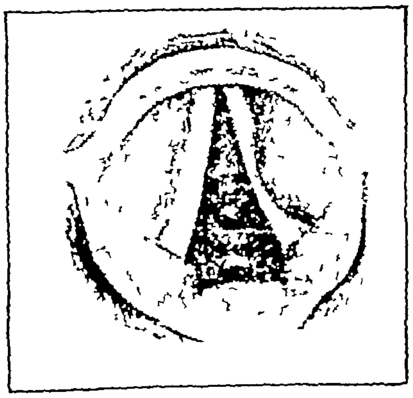

Fig 13 (Case 13)—Chronic tuberculosis of the larynx

Case 9—T C, aged 30, had marked hoarseness and laryngeal irritation Examination of the chest showed a moderately advanced form of pulmonary tuberculosis Both true vocal cords and the posterior commissure were infiltrated and ulcerated There was also slight edema of both arytenoids The diagnosis was chronic tuberculosis of the larynx

Case 10—O H, aged 24, was not troubled with any irritation of the throat, but examination of the larynx showed infiltration of the posterior commissure with slight thickening of the arytenoids These signs are generally the earliest manifestation of laryngeal tuberculosis Diagnosis was chronic tuberculosis of the larynx

Case 11—F G, aged 28, had an advanced type of pulmonary tuberculosis The entire right vocal cord was eroded, with infiltration and erosion of the right ventricular band Also partial erosion ("mouse-eaten" appearance) of the left cord and hyperplasia at the posterior commissure with chronic infiltration of both arytenoids There was marked hoarseness and partial aphonia The diagnosis was chronic tuberculosis of the larynx

Case 12—M K, aged 30, complained of slight hoarseness and, on examination of the throat, papillomatous infiltration of the posterior half of the right cord with slight thickening at the interarytenoid space was found Pulmonary tuberculosis in this patient was far advanced The diagnosis was chronic tuberculosis of the larynx

Case 13—A W, aged 24, was in an early stage of pulmonary tuberculosis Infiltration of left ventricular band was to be seen, also a chronic hyperplasia of the posterior commissure but no subjective symptoms of throat irritation had been noticed The diagnosis was chronic tuberculosis of the larynx

Case 14—E C, aged 24, had a warty growth on all parts of the larynx Physical examination of the lungs was practically negative, sputum examination and the Wassermann test were negative Hoarseness, dysphonia and discomfort in the larynx were the troublesome subjective symptoms The diagnosis was lupus of the larynx

CONCLUSIONS

1 The early diagnosis of laryngeal tuberculosis is of considerable importance

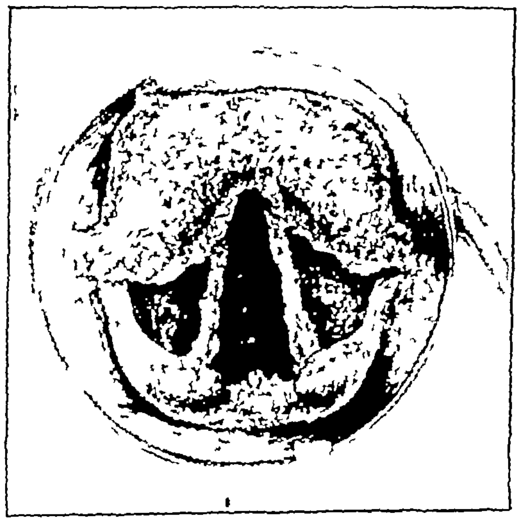

Fig 14 (Case 14)—Lupus of the larynx

2 Since tuberculosis of the larynx is almost always secondary to pulmonary tuberculosis, the determination of pulmonary tuberculosis is of value in the diagnosis of laryngeal tuberculosis

3 Dysphagia, dysphonia and aphonia are rare in early cases, and much less common in late cases than generally supposed

4 The frequency with which a part of the larynx was found to be affected was in direct proportion to the amount of trauma that part received as a result of its location and functional activity The parts were affected in the following order of frequency interarytenoid space, vocal processes, arytenoids, vocal cords, epiglottis, ventricular bands and aryepiglottidean folds

5 Many cases of bronchiectasis, lung abscess and accessory sinusitis present a laryngeal picture similar to tuberculosis, and to avoid confusion a thorough study of each case is essential

6 Through the cooperation of the family or clinic physician, the laryngologist and the sanatorium physician, no case of laryngeal tuberculosis should ever escape our attention

ABSTRACT OF DISCUSSION

Dr Wolff Freudenthal, New York Dr Dworetzky has brought out several points which are not quite in accord with my experience When, for instance he says that tuberculosis of the larynx is similar to pulmonary tuberculosis I cannot quite agree with him If we have plain laryngitis which does not respond to treatment we ought to examine the lungs in every case That anemia of the larynx is rare is contrary to my experience I have observed a marked anemia beginning at the border of the uvula and going down, which occurs frequently The congestion which is seen in many instances is often due either to a cough or the previous occupation of the patient as for instance, in cigarmakers

Dr Emil Mayer New York The last picture shown by the speaker is to my mind one of the most interesting things I have seen in that it shows the condition of what we might call chronic tuberculosis or lupus If you have never seen a case of lupus, bear that picture in mind, it will save you a great deal of trouble because if you saw an epiglottis, or even the anterior part of the larynx in that condition you would immediately say that is tuberculosis and get into trouble, for the reason that your patient would have very few, if any of the symptoms The most important differentiation between a chronic tuberculosis, that is a lupus of the larynx, and tuberculosis is in the question of prognosis I know a business man who is doing fine work whose voice is not affected and yet he has a ragged epiglottis he has no cough, but he knows that he has tuberculosis of the larynx It really is a lupus, and that is the most important differentiating sign, namely, ulceration and destruction without any corresponding symptoms

A NEW OPERATION FOR MOVABLE KIDNEY *

WILLARD BARTLETT, A M MD
ST LOUIS

Garre[1] tells us that movable or floating kidney is mentioned in the literature of early Arabian medicine Landau[2] states that the anatomists of an early date knew of the congenital form of this malady but that the acquired variety was first mentioned in 1581 by François Pedemontanus The *first surgical effort in* the treatment of the condition was a nephrectomy performed by Martini in 1878 It was not until 1881 that the rational method of restoring the organ to its normal location and fastening it in position was proposed by Hahn[3]

Since his time there have been the greatest variety of operative procedures advocated, all of them intended in one way or another to suspend the kidney by sutures either through its substance, through the tunica propria or through the fatty capsule Some have thrown loops around it of fascia, catgut, nonabsorable sutures, or gauze, designed to hold it in place for the formation of adhesions, while others have utilized the fibrous capsule by carrying it over a rib or over some other component structure of the abdominal wall Gauze packs and envelops have been used in a great variety of ways, both to hold it up temporarily and to induce the formation of adhesions

Zondek[4] reminds us that the diagnosis of abnormal kidney position and mobility is by no means easy, since various students of anatomy who have made special contributions to this subject fail to agree on the amount of kidney structure that is normally uncovered by the ribs as well as on the normal range of motion imparted to it by respiration or by change of position

It is obvious, then, that no surgical operation is justified by the mere considerations that a kidney is abnormally palpable or movable The intrinsic symptoms produced by this condition are frequently so elusive and so difficult in some instances to identify when they appear in a highly nervous person that I am not convinced that it is very good surgery to operate, as Mills says, "for subjective symptoms alone"

It must be admitted that a highly movable kidney is often accompanied by a renal type of pain which is instantly relieved by lying down Then, too, there is Dietl's crisis, which some observers seem to think characteristic of this condition, however, one must be sure of the absence of kidneystone, stricture of the ureter, gallstone disease, etc, before making those symptoms his sole guide to an operation for movable kidney

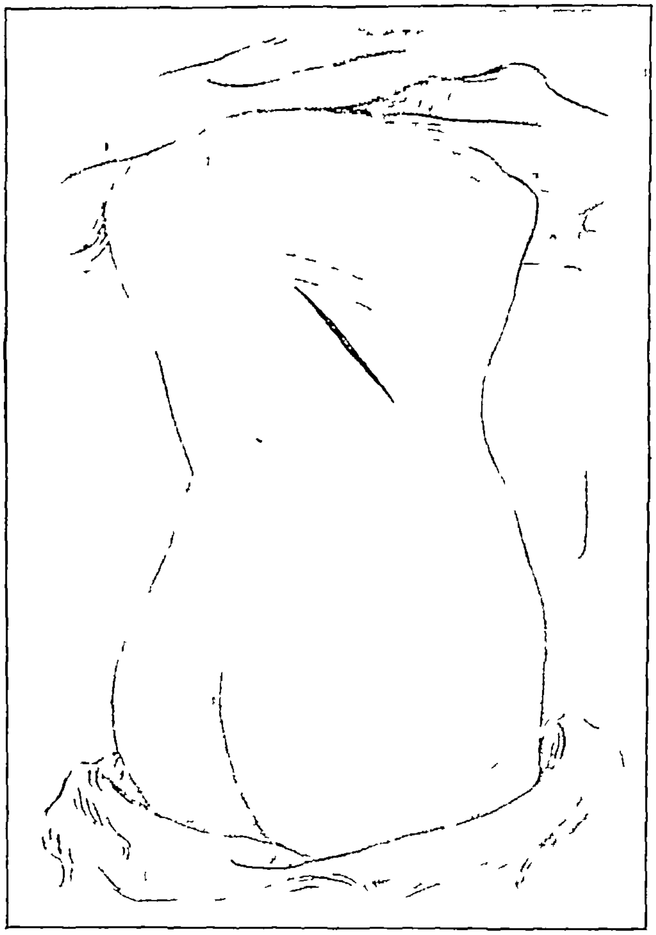

Fig 1—The incision.

It would seem in the light of present knowledge that the one definite and invariable indication for operation must be of an anatomic nature, namely, intermittent hydronephrosis This is expressed by a roentgenographic demonstration of a dilated kidney pelvis, atrophy of the apexes, and a kink in the ureter

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* Read before the Section on Surgery General and Abdominal at the Sixty Eighth Annual Session of the American Medical Association, New York June 1917

[1] Garre and Ehrhardt Nierenchirurgie Berlin 1907 S Karger

[2] Landau Movable Kidney in Women Selected Monographs London New Sydenham Society 1884

[3] Hahn Zentralbl. f Chir 1881

[4] Zondek Die Topographie der Niere und ihre Bedeutung fur die Nieren Chirurgie Berlin, August Hirschwald 1903

[5] Mills G P Discussion on Nephropexy and Its Results Tr Roy Soc. Med 1913 1914 7, Part 3

All of the other movable kidney patients excepting those of the class last mentioned are subjects for medical treatment

Israel[6] writes that the fatty capsule may accurately fit the kidney and move with it between the layers of the fascia retrorenalis, or, as I have much more frequently noted in operating, the fatty capsule constitutes a more or less thick-walled sack a great deal larger than the kidney, within the limits of which the organ is free to make its excursions up and down

After this right fatty capsule is stripped out, if the patient lies on the left side and in the Trendelenburg position, the observer will discover that there is left a well defined extraperitoneal cavity extending clear into the true pelvis

Morris[7] is authority for the statement that the kidney does not always move up and down behind the peritoneum, but sometimes is covered by so exceedingly loose a peritoneum that it is enabled thus to cross the midline in its excursions Since I have not had such a case, I do not know the value of this new operation in connection with it, and therefore none of my assertions are to be applied thereto

Most of the earlier operations designed for the treatment of movable kidney have depended for their efficacy on some form of suspension as opposed to my distinctly supportive procedure The hanging up of intra-abdominal organs all the way from stomach to uterus seems to have become a discredited principle in surgery, and while its application to the kidney does not involve the risks incident to organs completely covered by peritoneum, still its underlying mechanical deficiencies would seem to remain the same, especially when compared with a method that aims to prevent prolapse by obviating conditions which make a prolapse possible In addition, Walkow and Delitzin[8] make the pertinent observation that any method which sutures the kidney to the abdominal wall causes pathologic adhesions similar to those which result from inflammation, hence they term sutures "artificial, untrustworthy, and not free from danger" It may then be admissible to use this statement as an additional argument for the performance of my operation, which is physiologic so far as it imitates nature's effort to hold the kidney in place by the deposition of fat in and around it

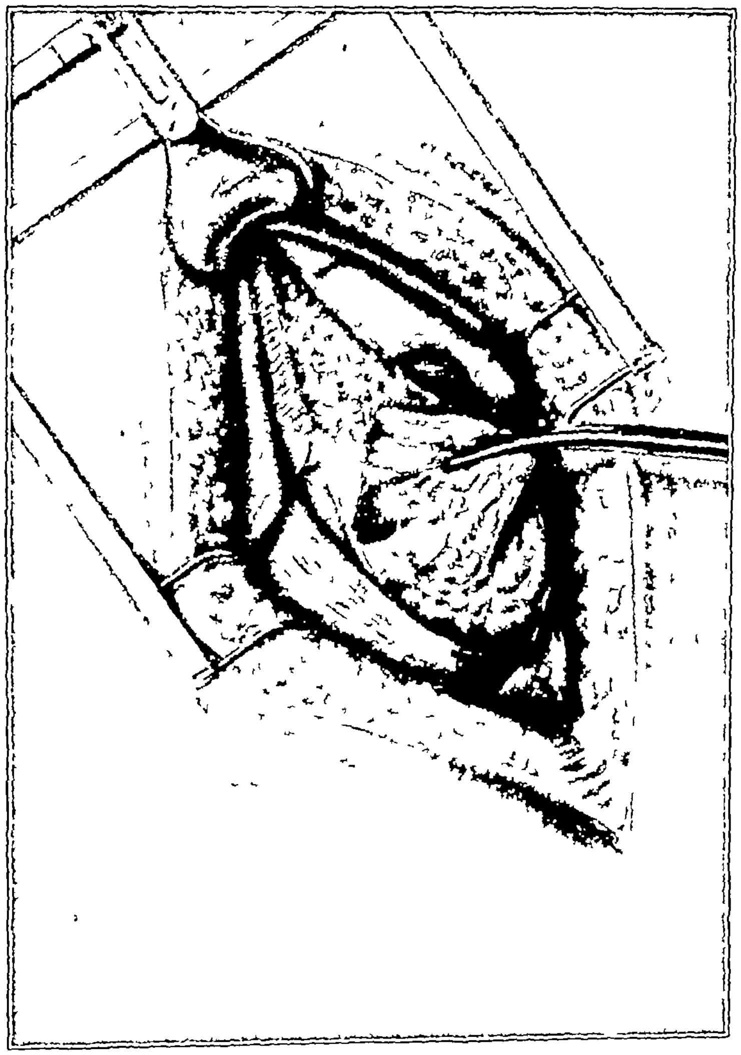

Fig 2—The intra abdominal fat grasped preliminary to stripping it from the lumbar muscles

Glenard,[9] and later Walkow and Delitzin,[8] mentioned sixteen different factors which influence the normal position and mobility of the kidney As a matter of course, we cannot consider all of them in view of the fact that this paper is devoted to the exposition of one new method of treating the subject It is sufficient to state that the operative technic now proposed rests in principle on a common clinical observation which has to do with but one of the normal factors mentioned above, namely, that the kidneys tend to become more than usually movable as an individual's body fat disappears, whereas this mobility decreases as weight is regained The success of this method depends on the now well known principle that fat can be successfully transposed and even that free transplants of this tissue will remain viable

The operative technic which I have used in the twenty cases under discussion is divided into the following six steps

1 With the patient lying on the left side I have employed the incision of my old teacher, von Bergmann, which bisects the angle formed by the last rib and the outer edge of the erector spinae (Fig 1)

2 As soon as the abdominal cavity is opened, all the fat is removed from the inside of the posterior abdominal wall, leaving the muscles perfectly bare in the kidney fossa, the object being the ultimate formation of broad adhesions between the kidney surface and these denuded muscles (Fig 2)

3 The fatty capsule of the kidney is divided longitudinally the entire length of the organ and caught with clamps at several points (Fig 3) The exposed kidney is lifted out of the abdomen, and at the same time the fatty capsule is inverted over on to the pedicle, being divided to a considerable extent above so that when the kidney lies completely outside the wound edges the inverted fatty capsule occupies a position beneath its lower pole (In some cases the fibrous capsule will adhere to the kidney very firmly, while in others it will tend to move with the fatty envelop, hence no definite rule can be formulated which will always govern the treatment of this structure In the majority of cases, it has been left undisturbed)

4 With a needle and catgut, the cut edges (Fig 4) of the fatty capsule which were originally grasped by

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[6] Israel Chirurgische Klinik der Nierenkrankheiten, Berlin, August Hirschwald, 1901

[7] Morris Surgical Diseases of the Kidney and Ureter, Cassell & Co

[8] Walkow and Delitzin Die Wandernière, Berlin, August Hirschwald, 1899

[9] Glenard Les ptoses viscerales, Paris, Felix Alcan, Editor, 1899

clamps are united, thus transforming this inverted structure into a rather considerable ball of fat, which in most instances is about half the size of the kidney itself

5 This ball of fat now constitutes a pedunculated flap and is transposed into the defect into which the kidney formerly slid To insure its remaining in the desired location, it is anchored to the inner aspect of the abdominal wall directly under the lower angle of the wound by a stitch of the catgut which was used to unite its component parts into one spherical mass (Fig 5)

6 The posterior abdominal wall is completely closed in layers without drainage

I carried out the steps of the operation through an anterior gallbladder incision on one occasion However, I do not recommend this method unless it is necessitated by other intra-abdominal work which cannot be equally done by the posterior route

When this operation has been completed in the way I propose three objects have been accomplished 1 The self-lubricating lining of the extraperitoneal cavity has been removed 2 The cavity itself below the kidney has been filled up 3 The bared kidney and bared muscles of the posterior abdominal wall are definitely opposed to each other for adhesions to form

No doubt the ball of fat remains permanently in position, although its real usefulness is probably exerted in the early period during which it holds the kidney up long enough for firm adhesions to take place between this organ and the posterior abdominal wall Probably a combination of these two factors serves to maintain the kidney in its new position after the patient leaves the hospital

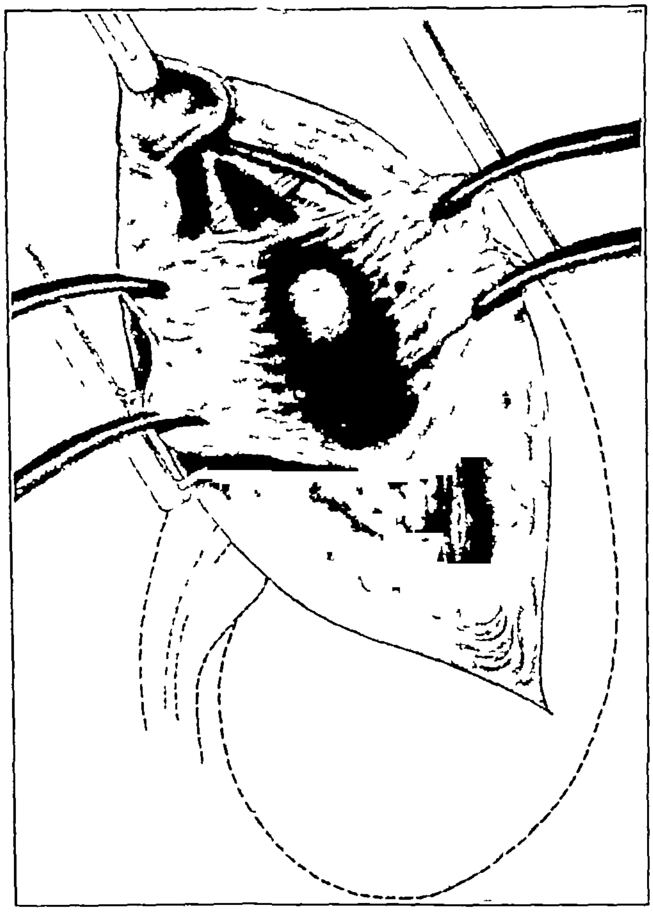

Fig 3 —The fatty capsule divided along the convexity and grasped at numerous points

Of course, the normal position for a kidney varies with the skeletal type of the individual, as has been best explained by Mills[10] of St Louis My operative technic may, therefore, have an additional value since it does not definitely fix, at the time of operation, the future position of the organ, but allows it to adjust itself to its environment and become ultimately attached in a location which corresponds to the patient's anatomic type

The rationale of this operation is perhaps best understood by one who has read Bissell's[11] description of the perirenal fascia He described it as an inverted bag which completely surrounds the kidney except in front where the two layers are separated for the entrance of the great vessels and below for the passage of the ureter It is between the two layers below that the kidney prolapses, and it is this defect which I aim to block by transposing the inverted fatty capsule into it

The Mayos[12] are the only surgeons who have, to my knowledge, made an attempt to treat movable kidney by obliterating the defect into which the organ has slid They have long accomplished this result by attaching the hepatic flexure of the colon to the lateral abdominal wall No doubt, Longyear[13] has accomplished the same thing in utilizing his "nephrocolic" ligament in immobilizing both the kidney and the bowel, although he does not seem to lay very especial stress on this feature of the procedure

The after-treatment of such patients consists in accentuating the various mechanical influences which normally tend to force the kidney to a higher level and keep it there We employ a snug binder with a soft elastic pad of common cotton batting over the right anterior abdomen and thus increase the influence of intra-abdominal pressure on the kidney

The foot of the bed is kept elevated as high as the comfort of the patient will permit, this position having a natural tendency to carry the kidney upward The patient remains on her back for two weeks, which is considered long enough for fairly firm adhesions to form between the kidney and the muscles on which it lies

Forced feeding is indulged in, since it must be kept in mind that the newly constructed fat pad will correspond in size to any increase or decrease of the general body fat It is a curious coincidence that the method which I propose is directly in line with the mechanical procedure employed by the internist in the treatment of these cases I use the patient's fat in holding up the kidney as he does and indeed, make use of a pad, but fashion it out of the patient's perirenal fat and apply it directly, in place of the artificial pad which the internist applies to the anterior abdominal wall Furthermore, this operation, as I brought out in an earlier paper,[14] accomplishes in a few minutes what requires months of patient reconstruction under the care of a competent dietitian

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10 Mills R W Body Habitus Am Jour Roentgenol April 1917

11 Bissell Surgical Replacement of the Prolapsed Kidney Surg Gynec. and Obst 1916 23

12 Mayo W J and Mayo C H Personal demonstration

13 Longyear Nephrocoloptosis St. Louis Mosby Company 1910

14 Bartlett A Method of Surgical Treatment for Floating Kidney, Jour Missouri Med Assn. April 1915

Ureteral catheterization has proved perfect remote functional ability in only one of these cases for the simple reason that only one patient has had postoperative symptoms urgent enough to induce her to submit to an examination In this case there was no hydronephrosis, the urine itself was normal, and the functional test gave perfect results alike on both sides four years after the operation had been done It may be added that in this case the recent symptoms were all pelvic, consisting largely of bladder manifestations pronounced by Dr John R Caulk of St Louis to be caused by chronic metritis and rightsided salpingitis

In describing the results of twenty of these operations, I am going to confine myself to the use of the patients' own words as far as the subjective side of the question is concerned, since the customary use of the words "cured," "improved" and "unimproved" permits so much latitude on the part of the interpreter that it can hardly be regarded as sufficiently accurate for the purpose in hand Of still greater importance, perhaps, is the physical examination of such a person at the remote period which has fortunately been possible in a rather large percentage of my cases

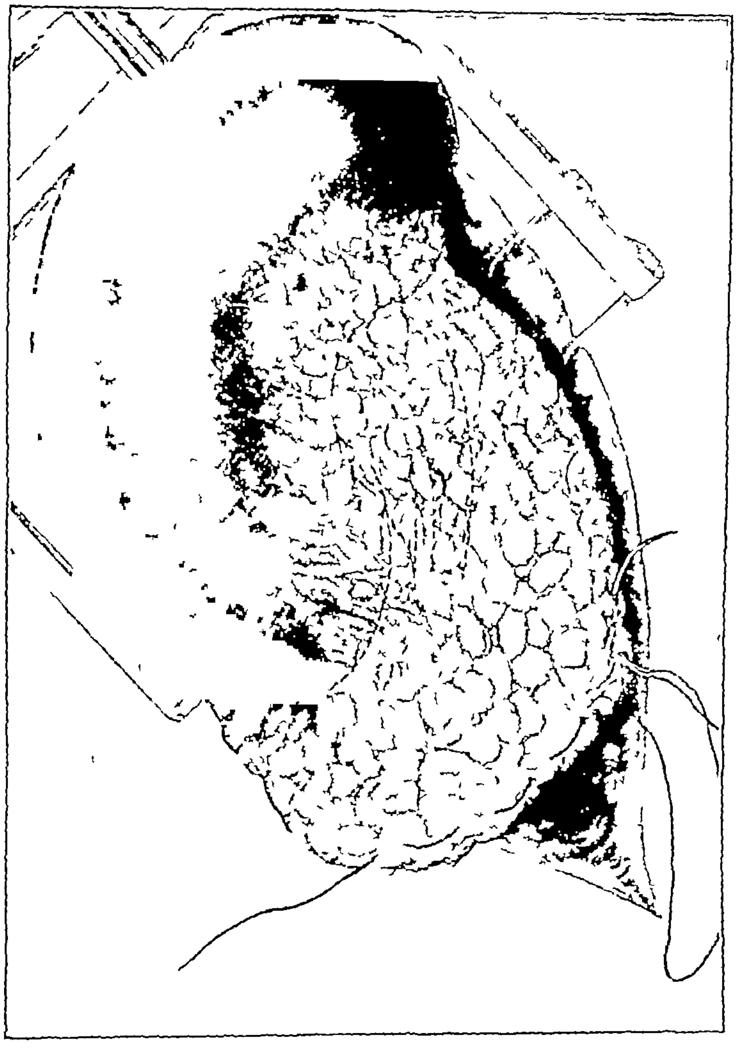

Fig 4 —The fatty capsule, inverted, is being sutured into a ball by catching the points previously marked by clamps

The operation described above has been done on twenty patients, of whom one (Patient 5940) died suddenly in the hospital nine days later At 3 20 a m the nurse carried the bedpan to this woman on her statement that she wished to void The patient remarked that she had had an unusually good sleep and felt uncommonly well The pan was used and removed with but slight exertion on her part, but before the nurse could reach the door the patient cried out with violent pain in the region of the heart and clutched at her side with her left hand She quickly became ashy and pulseless The intern arrived two or three minutes later, but no heart sound could be heard At this time the patient was cold, but apparently there was little respiratory difficulty Death occurred in less than fifteen minutes from the time of the first complaint No necropsy was obtained

The remaining nineteen patients have all been heard from at periods after the operation varying as follows

Four after 5 years, one after 4 years, 6 months, one after 4 years, 3 months, one after 4 years, one after 3 years, 6 months, one after 3 years, one after 1 year, 3 months, two after 11 months, one after 9 months, two after 8 months, one after 4 months, one after 2 months, one after 1½ months

Fifteen of the nineteen patients who recovered have recently been subjected to physical examination by me personally, and hence I am in a position to know definitely regarding remote results All of these nineteen patients were asked to answer specifically the following four questions

1 Have you had any more (specific symptom asked in each case) which was your leading complaint before the operation?

The answer "no" was given in 68 4 per cent, while "yes" was the reply in 31 5 per cent

2 Do you consider your general health to be better since the operation?

One patient replied that it was too soon to tell, while 68 4 per cent answered in the affirmative and 26 3 in the negative

3 Are there any new symptoms which you think have resulted from the operation?

Ninety-three and one-tenth per cent answered "no," while one patient insisted on soreness in the region of the wound as a new symptom

4 Do you think the kidney has stayed in place?

The affirmative reply was given in 100 per cent of cases

A At the time the final physical examination was made on the patients I wrote down that in one patient the kidney was not palpable, in two patients it was of normal size, in two patients it was large, in three patients it was small, in six patients it was of moderate size

B The patients were all examined in a lying posture with reference to the position of the kidney, which was noted in three instances high or "normal", in three others the lower pole was 2 cm above the level of the umbilicus, in three others it was 1 cm above this point, in four cases it was at the level of the umbilicus, in one other it reached slightly below this landmark

C Movement with respiration in the lying posture was next considered In 66 6 per cent of the cases none could be detected, and in 33 3 per cent movement of 1 cm or less was appreciable

D Movement with change of posture from the lying to the sitting or standing was then considered, with a result that this never exceeded 1 cm, and could be detected in some degrees in only 40 per cent of those examined, while in 60 per cent it was not appreciable at all

These figures by no means do the subject justice, since they fail to express the amount of relief obtained, in many instances from intolerable suffering which rendered patients entirely unfit for any occupation or the enjoyment of life However, they fufil their purpose since it has been my desire to present the proposed operative procedure to the most searching criticism.

(The underlying scheme of showing the kidney in various positions by dotted lines employed in our illustrations was suggested by Broedel's drawings in Kelley and Burnham's[15] excellent textbook. It must be added for the purpose of clearness, that the method herein proposed has absolutely no point in common with that employed by Dr Kelley.)

ABSTRACT OF DISCUSSION

Dr. Hubert A Royster Raleigh N C: We need to understand as pointed out by the author that a mere dropping of the kidney is not an indication for operation because many times not only are there no symptoms present but very often the patient herself does not know that she has a floating kidney. And in the words of a great philosopher 'What you dont know wont hurt you.' Now these operations have not only failed to relieve symptoms very often but they have failed to restore the kidney to its normal position and at times have made conditions worse. Numbers of recurrences I am sure are on the list of every operating surgeon. It behooves us to understand just what are the symptoms of a misplaced kidney. I confess that I do not know. As I remarked there are often no symptoms. At other times if symptoms occur how do we know that they are due to this condition? So that there are a number of questions which suggest themselves. Is it necessary to show that a hydronephrosis is present before one decides to operate? Is the pain always due to a kink of the ureter? Does not pain sometimes exist from other causes and are we certain that the nervous phenomena exhibited by the patient are due to a misplaced kidney? The operation proposed by the essayist, I feel inclined to say, has great merit. We might inquire, however, if the ball of fat will permanently hold up the kidney. Does fatty tissue hold up organs always? Will it not yield and will it invariably refrain from absorption? We have been told that the kidney drops very often on account of the absorption of the perirenal fat. If that is the case, do we always have enough fat left here to act as a ball on which we can place the kidney? It seems to me that is an important point to consider. Does the author of this operation find that he has in most cases enough of the perirenal fat left behind to serve his purpose? I am very glad to see that he makes a high incision. In most instances in my experience, when attempts have been made to restore kidneys to their normal position, they have been very far from it. Usually the kidney is placed backward against the posterior abdominal wall and very much lower than its actual anatomic position. Now if the high incision is made, we come nearer to placing it in its proper position than if we make a low incision. It is not my disposition to be too critical of this operation. If the author had given me an opportunity to try the operation before discussing it, I would certainly have done so, because I have numbers of these cases on my waiting list whom I have not dared to interfere with after the usual methods. I have preferred that these patients should wear a good corset and wait a while.

Dr Daniel N Eisendrath, Chicago: If there is any field in modern surgery to which Dr Bartlett's remarks in his paper this morning are applicable, it is this field of movable kidney. No greater number of sins of commission have been recorded than in these patients, who are operated on simply for the reason that the kidney is a little bit below the umbilicus and perhaps has a little more mobility than normal. I was glad that Dr Bartlett said that his chief indication in these twenty cases was the existence of an intermittent hydronephrosis. I would like to amplify this, that in some of these cases there is not an actual intermittent hydronephrosis, but often repeated occurrence of Dietl's crises. I have had experience of a number of cases in which a pyelitis is favored by a kinking, or at least by a malposition, of the kidney, an abnormality. I believe that is something we should add to the indications. Aside from that, I believe there is no indication for an operation on the movable kidney, for this reason. These patients are the subject of a general visceroptosis and the immobilization of the kidney is only a portion of our therapeutic procedure and since we are unable to agree on any standard method of immobilizing all of the abdominal viscera at once, it is unfair to subject these patients to operation. Dr Royster mentioned the fact that in his experience these patients have very little fat. That has been mine also. Of course Dr Bartlett's pictures showed a very ample support of perinephritic fat. In my experience there has been so little fat that the poles were lower. That is something we cannot reckon with. Another objection is that one is banking everything around the pelvis of the kidney and around the lower pole, chiefly depending on that for support. One is not anchoring any other portion of the kidney. The result may be to have compression of the ureter, because one is unable to gage the amount of pressure on the ureter, and unless it is fixed at the upper pole it is liable to rotate and give rise to symptoms the patient had before. Now there is one method of diagnosis which, as my experience in kidney surgery increases, I have come to regard as the only absolute test of the mobility of a kidney. I don't believe that one can tell by palpation through the abdominal wall whether a kidney is 1 or 2 cm further down than it ought to be. The only method is by the use of pyelographs. There seems to me also a danger in this operation, namely, that it depends on fixation of the kidney for lower pole support and not denudation, as we think it necessary to fix the

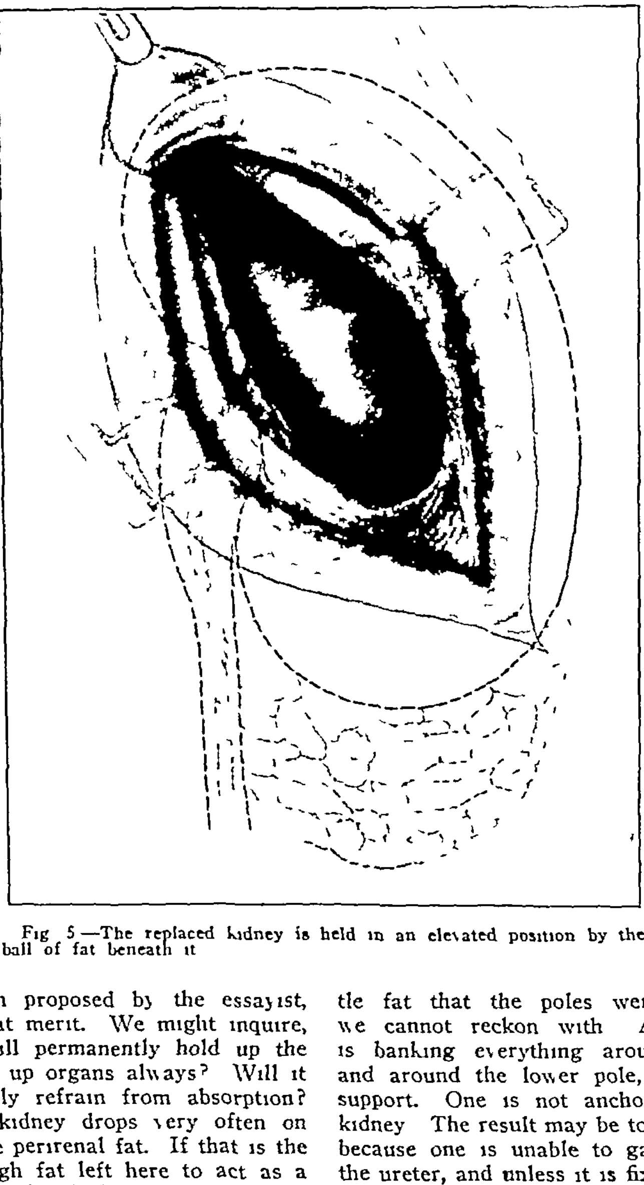

Fig 5—The replaced kidney is held in an elevated position by the ball of fat beneath it

rest of the kidney in its new bed I think the paper is timely

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[15] Kelley and Burnham Diseases of the Kidneys, Ureters and Bladder New York D Appleton & Co 1914

Dr. Emery Marvel, Atlantic City, N J Prolapsing kidney causes suffering which is remedied by correcting the cause Frequently, as stated, movable kidney is only one of a number of misplaced organs Visceroptosis is not curable by correcting one unit in the chain which causes the symptoms I would differ with Dr Eisendrath when he asserts that the symptoms occasioned by the kidney are more pronounced in visceroptosis I think perhaps the symptoms are more pronounced when the kidney is prolapsing, without general ptosis of the other viscera I wish to express my appreciation to Dr Bartlett for again calling attention to a surgical remedy which has grown into disrepute, but which has merits to entitle it to further consideration I fully agree with Dr Eisendrath that too frequent and too promiscuous operation is a sin of commission, but it also seems to me that we should be responsible for sins of omission if we declined to recognize the responsibility to correct prolapsing kidney, but, instead, permitted continued suffering which could be relieved If we operate on the kidney alone which proves but one link in a chain that causes the trouble, we shall have great disappointments in our results Among other conditions found with prolapsing kidney is that the ascending colon is dropped and by its distention a fecal sac is formed There is frequently chronic appendicitis In such cases the appendix certainly should be removed and some means should be employed by which the colon could regain its position and normal caliber Dr Bartlett strips back the colon and accentuates the displacement by interposing additional bulk below the kidney The malposition of the colon is increasingly aggravated to a greater prolapsing position Dr Bartlett operates on the hypothesis that a prolapsing kidney is due to the loss of perirenal fat That has been a theory about which I remain unconvinced I should like to hear from Dr Bartlett whether or not he is convinced that there is relatively more fat on the prolapsing than on the nonprolapsing kidney It would seem that the great cause for prolapsing kidney is an anatomic one The displacement is present mostly in subjects of straight spine, where there is a reduced shelf for the kidney to lie on

Dr C E Cantrell, Greenville, Texas I think the profession has allowed the pendulum to swing too far in cautioning surgeons not to operate on kidneys I am really sorry that more has not been done to prove or disprove the work of Edebohls In our work we have found some wonderful results in inflammation of kidneys I am sorry, also, that these gentlemen who have adversely discussed this paper, in a measure failed to see the very point that the essayist made the most advantage of, holding the kidney where it belongs The kidney is held where it belongs by intra-abdominal pressure with very little help One gentleman said he would not put a platform under the child to get it out of the well, he would pull it out with a rope If he had left that well wide open to the child, would not he be more apt to go into the well? Now the essayist closes up this oily well that the kidney so easily slips down into, and leaves it so that a very little help will cause the intra-abdominal pressure to keep the kidney back on that shelf made by the coming forward of the spine Let us not just condemn things because the tendency is to condemn I would not want to operate on a kidney because it had been found by the Roentgen ray out of place Unless kidneys produce symptoms one had better let them alone If a woman who does not know she has a floating kidney comes complaining, one had better get a little clinical history and see if the kidney is at fault. Now let us study the field Most movable kidneys are on the right side On this side the colon is attached about 4 inches, on the other side 12 inches, which makes the difference If the kidney gets clear down into the abdomen and makes trouble in the pelvis after it begins pressing on the organs, a clinician ought to be able to know something about it. It seems that they have failed to get the idea that the essayist in stripping the fat off of the muscles of the back clears that field Perhaps he will get some adhesions there which will fix the kidney, the pad made by the fat and intra-abdominal pressure will hold it in place If he goes further and slits the capsule, he will get better fixation, and I am glad now I know how to close the well Let us hope we will get better results by closing up the well

Dr. Martin B Tinker, Ithaca, N Y I feel inclined to agree that Dr Bartlett has been pretty severely criticized There are two sides to this question, and one point that we all recognize There are cases in which loose kidney is not associated with general visceroptosis, in which operation is indicated, other cases with general visceroptosis in which operation is contraindicated The cases with hydronephrosis, Dietl's crises and the loose kidneys pressing in the region of the common duct and causing common duct obstruction definitely indicate operation The number of cases for kidney fixation is small, but all experienced surgeons here must have operated occasionally and seen good, permanent results It seems hardly necessary to call attention to the fact that the main feature of Dr Bartlett's operation was also suggested by Nicholas Senn, who advised pushing the fatty capsule of the kidney into the opening below the lower pole Dr Robert T Morris also suggested this method, I believe. Dr Bartlett's method seems a more perfect utilization of the principle suggested by Drs Senn and Morris We should not operate in many cases of loose kidney, but in certain instances it is definitely indicated and gives good results Furthermore, when we criticize Dr Bartlett's method we should remember that probably 70 per cent. of us sterilize catgut according to his method and many are using his methods in treating large ventral hernia The fact is, we know Bartlett's statements will bear careful scrutiny, this operation which he details is probably useful or he would not tell us so

Dr. Willard Bartlett, St. Louis I must thank the gentlemen who have discussed the paper for giving me an opportunity to bring out things, all of which are discussed in the body of the paper but which are left out because I read only the essence Dr Royster wants to know if we do have enough fat in every instance to make a ball to hold the kidney up That is a very pertinent matter In some instances we had not as much fat as we desired, but it does not seem to take very much when one considers the other two factors which are favorable I do not say that the fat did it all, but it was accomplished by removing the large lubricating joint surface, and by skinning the kidney you do favor the formation of adhesions I have noticed no difference in results when not much fat was in the fatty capsule Dr Eisendrath speaks of the possibility of the kidney rotating again because it has nothing under it but a little ball of fat I must call Dr Eisendrath's attention again to my very definite statement, that I depend on three factors just mentioned, and that the combination of them does seem to prevent the kidney from rotating on what is really not a very large ball of fat I had thought of that and I am very glad Dr Eisendrath brought it out It does not happen, apparently Dr Eisendrath remarked that the only way to tell whether the kidney, after operation, is really movable or not is by making a pyelogram This is all very well if one can ever in this world get a patient to submit to it twice I must again call Dr Eisendrath's attention to the fact that there is much denudation with the idea of getting adhesions Dr Marvel spoke of the other factors which hold up the kidney There are sixteen of them considered in the paper, and I should perhaps have laid more stress on the fact that time did not permit discussing the other fifteen I cannot answer Dr Marvel's question in regard to the relative amount of fat around a prolapsed kidney Dr Tinker calls my attention—and I appreciate it very much that he does—to the fact that there is nothing at all new in surgery and that Senn packed gauze under the kidney years ago All of these authorities are carefully written up in the paper and there is a long list of references They are all given credit for everything they have done I must thank Dr Cantrell for having fully understood the thing and saved me a lot of repetition in closing the discussion

Good Taste—Good taste is nothing more nor less than a correct estimation of all proportions—*Lorand*

BACTERIAL VACCINE THERAPY*

JAMES P. LEAKE, M.D.
Passed Assistant Surgeon, United States Public Health Service
WASHINGTON, D. C.

"If at the present time ten years of public notoriety have passed over any doctrine professing to be of importance in medical science and if it has not succeeded in raising up a powerful body of able, learned and ingenious advocates for its claims, the fault must be in the doctrine and not in the medical profession." This old criterion of Holmes is applicable to bacterial vaccine therapy this year, for though Fraenkel's work dates back a quarter of a century and Wright's fifteen years in this country, it was not until about ten years ago that any great degree of notoriety attached to the subject. The profession generally was about to grant vaccine therapy, at least autogenous vaccines, a more or less definite place when the new mass of data regarding nonspecific reactions began to appear and to cause grave doubts as to what were formerly regarded as fundamental principles.

A clear differentiation must be made between vaccine therapy and prophylaxis. The value of typhoid vaccine in prophylaxis is unquestioned, but the immunity thus obtained in doses small enough to spare a sick patient from the danger of a reaction are given may not be rapid enough to be of use in therapeutics. The impression has become more and more dominant that in order to have any definite assurance of improvement from vaccine injection there must be a reaction. These reactions occur in nonspecific injection therapy. Whether all the improvement in specific bacterial therapy depends on the nonspecific reaction is still questionable. The tendency toward recurrence forms one of the objections to accepting improvement after vaccine therapy as being specific.

Regret over the extension of the meaning of the word vaccine beyond the true jennerian sense is now useless. Pasteur himself applied the term to his attenuated anthrax injections, and it has been broadened by some to include every substance injected for the purpose of producing an active immunity. A stricter use and one which I believe should be generally followed includes under vaccines only suspensions of the bodies of micro-organisms living or dead. The products of bacterial growth are thus not vaccines, neither are they toxins, though poisonous or toxic, unless they have the property of stimulating the production of demonstrable antitoxins.

As between stock and autogenous vaccines in therapeutics, there is no question that the reports favor the latter. The vote is so strong that the evidence on first thought would be overwhelming for specificity. In fact, one of the great objections to vaccine therapy has been the apparently extremely narrow specificity of some of the reactions, no other vaccine than that made from the patient's own strain proving beneficial, and we are advised that sometimes even strains isolated early in the course of a treatment become useless and a fresh culture from the infected focus must be made for a second and again for a third vaccine. Autogenous vaccines are practically always fresher than stock vaccines, and there is ground for believing that toxicity or the reaction-producing quality decreases on storage. The commercial stock vaccines of the large biologic manufacturing laboratories, on the other hand, are safer than the usual autogenous vaccine. The vaccines made by laboratories holding federal license, while impossible of accurate control as to potency, are generally more carefully tested as to sterility and content of preservative, and are less likely than other vaccines to contain an excess of toxic protein. If the number of these preparations on the market were an index of their efficacy, one would say that they must be of some value.

NEED FOR CONTROL OBSERVATIONS

The literature abounds with observations on this form of therapy, but the vaccine was administered for the most part without controls. It is obvious that the tendency is to report favorable results, while the series of nonsuccessful cases are less likely to be published. Largely on uncontrolled, but remarkably uniform, experience we have come to think that staphylococcus vaccines are of benefit when proper surgical relief is also given. Why should we demand more scientific checks on observations in the wider field? Because it is high time that bacterial vaccines should either be found definitely useful under clearly outlined conditions or be discarded; in other words, practice has jumped far ahead of knowledge, and knowledge should recover its place. It is hoped that military hospitals in the various countries at war will enable studies to be made on a sufficiently large and complete scale to justify permanent conclusions. The uncertainties due to enthusiasm for any rather new treatment are obvious, but in the case of vaccine therapy our vision is particularly clouded. The seemingly scientific basis for the treatment tends to impress both doctor and patient, and the injection, the reaction and recovery therefrom can hardly help having some psychic effect. Vaccine therapy was formerly considered to be practically devoid of danger, but since benefit is now thought to be proportionate to toxic reaction, and particularly with the intravenous administration, accurate knowledge is essential to replace the present hit-or-miss plan.

My plea, then, is not for utter abandonment of therapeutic inoculation, but for its better control, and for the collation of such reliable data as will more clearly guide our future use of the method. In a laboratory experiment, unless a reaction is quantitatively well established when all the elements are known, there should always be as large a number of control or check tests using the known elements as there are of tests with the unknown element which is under trial. So with the therapeutic test of such substances as bacterial vaccines, since we cannot accurately forecast what will happen in the untreated cases, there should in each series be as large a number of these (or of cases treated nonspecifically) as of vaccine-treated cases, at the same time, under the same conditions, and with the same impartial observation, in order to secure the greatest accuracy from a given number of tests. It would be invidious to indicate examples, but a great part of the unqualifiedly favorable communications on vaccine therapy, reporting uniform benefit without severe reaction, bear internal evidence of lack of careful control, and as a rule the more favorable, the greater is this evidence.

On the other hand, we have some very carefully controlled reports. Last year Captain Whittington[1] of the Royal Army Medical Corps reported 230 cases of typhoid fever, selected to conform to rigid standards of diagnosis and classified as to relative severity, and divided them into two lots, so that each vaccine-treated case was accurately checked with a nonvaccine-treated case in the same state of prophylactic vaccination, of the same severity, occurring in the same season, climate and locality, of the same sex, of about the same age and previous health, and receiving the same general treatment as to nursing, dieting, etc Captain Whittington had the advice of Sir William Leishman on the earlier cases, so that there should be little to criticize as to dosage and time between doses Such a series, though small, is far more valuable than thousands of cases collated from different observers without proper controls, with the chance favorable results in many instances acting as a spur to publication Whittington's result are recorded in the accompanying table

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* From the Hygienic Laboratory.

[1] Whittington, T. H.: A Report on the Use of Stock Vaccine in Infection by the Bacillus Typhosus, Lancet, London, 1916, **190**, 759-766.

COMPARATIVE RESULTS FROM THE USE OF VACCINES IN TWO HUNDRED AND THIRTY TYPHOID FEVER CASES

	Mortality Per Cent.	Average Days Fever	Relapsed Cases Per Cent	Cases with Complications or Sequelae Per Cent
Vaccine treated cases	25	29 2	10 4	49 5
Controls	21	26 1	7 8	46

A comparison of these results shows that the controls did a little better than the vaccine-treated cases Moreover, from the promptness with which some of the hemorrhages followed a vaccine injection, there was a decided suspicion that the vaccine might have induced this complication

Whittington started with a bias in favor of the vaccine, which his earlier cases tended to confirm This is one reason for lack of sufficient controls in most published series Inspired by hope, the workers become so enthusiastic that the majority of the patients are given the "benefit" of the vaccine To a laboratory worker it would seem that, with our present knowledge, no patient is unjustly treated in having this so-called specific treatment withheld

The recent intravenous treatment of typhoid fever and some other conditions with various bodies, specific and nonspecific, gives striking results in a proportion of cases, but the dangers in the general use of this method, admitted by practically all who use it, restrict its field at present to the same carefully controlled circumstances as those previously outlined These dangers are very apparent in intravenous treatment of animals with bacterial suspensions

One other small but well controlled series was recently reported by a group of workers[2] under Dr Park, of the Bureau of Laboratories of the New York City Health Department These authors also, even up to the time the results were tabulated, believed that the vaccine (pertussis in this case) was of specific benefit Outpatient material was used, open to the usual objection of uncertain home conditions and questionable information on the part of the parents Of the more than 1,000 cases, 75 per cent were rejected because they were not in the proper period of the disease for good comparison, because the diagnosis was somewhat uncertain, because the address was changed, because of unreliability, or for some similar reason The parents were carefully cross-examined to rule out false reports, and visits were continued at the homes to complete the records Alternate patients were chosen for the pertussis vaccine, the others receiving either influenza vaccine, milk solution diluted to resemble vaccine, or merely terpin hydrate by mouth "In recording the remarks on the charts, the investigators were not biased by a knowledge of the vaccine employed, as they did not know until the study was finished which was which The secret was safeguarded by the maker of the vaccine" Yet when the data were assembled, no matter what the grouping, whether according to intensity of onset, stage of disease, duration of disease, or intensity of paroxysms, the result was the same The pertussis vaccine showed no superiority over the nonspecific treatments

The experience of such clinicians as Dr Billings, who has had the most expert technical assistance and advice, with parallel serologic studies, is more important than the mere numerical summary of the overburdened and much vaunted favorable literature on specific therapy After years of trial, especially in chronic disorders which should offer the most favorable field, Dr Billings[3] says that a personal and general hygienic management will accomplish quite as much without as with vaccines, and that vaccines without proper attention to a hygienic management are more likely to be harmful than helpful It has been justly said that autogenous vaccination involves a hunt for latent foci of infection, and that this attention to the patient, with consequent local treatment of such foci as are found, is of itself of great benefit Properly prepared and tested autogenous vaccines, however, are not within the reach of the great majority of patients The bulk of vaccine therapy, if it is to become generally available, must be on the stock basis Autogenous vaccines are often as ludicrously abused as stock vaccines The differentiation of organisms is largely morphologic, the most easily grown are those found The securing of a bacterium from the bodily discharges or mucous surfaces, even with a positive serum reaction, cannot be accepted as demonstrating a causative relationship to the disease or any part of it, unless the bacterium is well known to be a pathogen As for deeper cultures, those who work with laboratory animals know that normal tissues are by no means found constantly sterile

The case in general is not proved, and doubt is increasing Many keen observers believe that specific bacterial therapy is a failure In some diseases claimed to be within the field of vaccines, such as pertussis, asthma, or bronchitis, a smallpox vaccination, a minor operation, or an intercurrent infection has been observed to precede partial or complete recovery Why not a hypodermic injection, especially if followed by a systemic reaction? Moreover, there is a difference between changing the course of a disease, and changing it beneficially with any degree of certainty

Negative results by one set of workers should not discredit the whole method of treatment Slight but important modification by other workers may give more favorable results, but we should have the details, and above all, proper controls

Hygienic Laboratory

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[2] Von Sholly Anna I, Blum, Julius, and Smith, Luella Therapeutic Value of Pertussis Vaccine in Whooping Cough, THE JOURNAL A M A, May 19, 1917, pp 1451 1456

[3] Billings Frank Discussion on Vaccine Therapy, Tr Cong Am Phys and Surg 1916, **10**, 135 158

Science —To the natural philosopher, to whom the whole extent of nature belongs, all the individual branches of science constitute the links of an endless chain, from which not one can be detached without destroying the harmony of the whole —Schoedler

ECTOPIC GESTATION

DIAGNOSIS AND TREATMENT *

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NEW YORK

The signs and symptoms of ectopic gestation are more distinct and characteristic than those associated with other diseases of the pelvic organs, and may be divided into two groups (1) the unruptured and (2) the ruptured The following are the diagnostic signs and symptoms of the unruptured group

1 Amenorrhea or some irregularity of menstruation is generally present (excepting when tubal pregnancy occurs during lactation) Menstruation in tubal pregnancy is as exceptional as it is in uterine pregnancy

2 As a rule the patient feels that she is pregnant, and may have the characteristic subjective signs peculiar to some individuals She may suspect that the pregnancy differs in some manner from her previous gestations

3 Pain is a constant symptom of tubal pregnancy, and is due to the small hemorrhages caused by the eroding villi or the distention of the tube by the constantly growing ovum The pain is sharp, lancinating and paroxysmal in character and is not only referred to the affected side, but particularly to the ovarian region

4 Uterine hemorrhage which is the result of decidual degeneration and separation is a constant symptom of the disease and usually begins about the sixth or seventh week and invariably ceases after operation, or destruction of the ovum by rupture or abortion In rare instances the disintegration of the decidua is retarded and there is comparatively little uterine bleeding and as a consequence the decidua is eventually expelled in the form of a cast of the uterus In my series of 280 operations, to date, there were but three decidual uterine casts

5 The uterus is invariably somewhat enlarged, its consistence, however is that of the normal nonpregnant uterus In very exceptional cases, when the decidua remains intact and is subsequently expelled in the form of a cast, the uterus may present an elastic area in the anterior wall

6 The presence of a distended tube on one side, which offers to the palpating finger the feel of an elastic, tender, fusiform and usually movable tumor, is characteristic The physical signs of a tube distended by a gravid sac, while not easily distinguished from hydrosalpinx, hematosalpinx, and a thin-walled ovarian or parovarian cyst, can generally be readily differentiated from pyosalpinx, retroverted pregnant uterus, pelvic abscess or exudate, and uterine tumors

7 Two negative signs of great importance are the absence of elevation of temperature and the exclusion of uterine pregnancy There is no rise of temperature in unruptured tubal pregnancy After rupture has taken place, there may be a rise of temperature due to the infection of the extravasated blood in the peritoneal cavity by the colon bacillus The leukocyte count and the hemoglobin test are of no value in the unruptured variety After rupture there may be an increased leukocyte count and reduced hemoglobin percentage

DIFFERENTIAL DIAGNOSIS OF UTERINE AND EXTRA-UTERINE PREGNANCY

The most prolific source of error in the diagnosis of tubal pregnancy can be entirely eliminated by a correct differentiation between uterine and extra-uterine pregnancy An infallible sign of early uterine pregnancy is the peculiar elastic area in the median line of the anterior wall of the body of the uterus, above the junction of body and cervix, to which I called attention some years ago In one recent textbook on obstetrics, brief mention is made of this sign as "the bulging and softening in the anterior wall of the uterus" Another author describes it in full and attests its value It is a good beginning, and it is to be hoped that sooner or later this valuable sign will receive the general recognition that it deserves

In uterine pregnancy, the elastic ovea can invariably be felt after the fifth week, in tubal pregnancy, however, while the uterus is enlarged, the elastic area in the anterior wall is never present except in the very rare instances of uterine casts cited above Thus the presence or absence of the elastic ovea will determine the question of uterine or extra-uterine pregnancy

A correct history, and the elicitation of all the foregoing characteristic signs and symptoms, call for a positive diagnosis The presence of some of the signs, especially if other pelvic lesions can be eliminated, justifies a presumptive diagnosis It is a pretty safe rule to think of ectopic gestation in every patient who has had amenorrhea followed by irregular bleeding and pain on one side

A condition that at times is difficult to differentiate from tubal pregnancy is that of a corpus luteum cyst The signs and symptoms of the two conditions are occasionally identical, including, also, amenorrhea followed by irregular bleeding

SYMPTOMS AND DIAGNOSIS IN RUPTURED TUBAL PREGNANCY

The additional local and constitutional signs of internal hemorrhage attendant on rupture are pathognomonic of the condition However, in slight ruptures hemorrhage into the peritoneal cavity may be scanty and cause no further symptoms than a sudden severe lancinating pain, followed by general abdominal pains, nausea and vomiting Likewise, when rupture takes place between the layers of the mesosalpinx, hemorrhage is usually not very profuse and produces very few signs of internal bleeding Successive ruptures may occur at indefinite intervals and produce such slight symptoms as to escape attention, until the final and tragic rupture calls for immediate surgical interference

The symptoms caused by rupture will depend for their severity on the extent of the rupture and the displacement of the ovum, and the amount of the internal hemorrhage, and will range and merge from the state of syncope to that of shock, collapse and occasionally unconsciousness The anemia, the blanching of the mucous membranes, thirst, air hunger, shallow and rapid respiration, feeble pulse and subnormal temperature vary according to the degree of the hemorrhage and resisting power of the patient Locally, the abdomen may be distended and tender, and palpation will elicit a fluid wave Bimanual examination will, as a rule, reveal a soft, boggy tumor on one side or the other, which appears to the examining finger to be undefined in contour, and may change its shape under manipulation When the gravid contents have become

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty Eighth Annual Session of the American Medical Association New York June 1917

entirely detached, and float in the peritoneal cavity, or when perforation has taken place during the early weeks of pregnancy, especially in the isthmian type, no localized pelvic tumor will be palpable, and the only evidences of rupture will be the presence of free fluid in the pelvic and abdominal cavities

Shock and collapse due to hemorrhage from ruptured tubal pregnancy may simulate lesions of other abdominal viscera, for instance, perforation of the stomach, of the duodenum, of the small intestine or of the appendix, rupture of hydrosalpinx or of pyosalpinx, twisted pedicle of ovarian cyst, torsion of the tube, acute intestinal obstruction and renal and biliary colic Study of the signs and symptoms presented by such cases will often clear up the diagnosis without any difficulty

There are instances of intra-abdominal hemorrhage, however, which cannot be differentiated from ruptured tubal pregnancy, a number of which came under my observation In one case profuse abdominal hemorrhage was due to spontaneous amputation of a twisted pedicle of an ovarian cyst, in another, to torsion of the tube, with cyst of the fimbriated extremity In a third case, perforation of a graafian follicle, and in several cases rupture of a corpus luteum cyst was followed by severe intra-abdominal hemorrhage

The pelvic findings in the unruptured varieties are characteristic and distinctive of the disease, while in the ruptured cases the signs of internal hemorrhage will often prove the determining diagnostic factor

Exploratory vaginal section for diagnostic purposes is absolutely uncalled for in tubal pregnancy, and is an unnecessary and unsatisfactory surgical procedure

TREATMENT

The only rational treatment is operative While there is no difference of opinion on that score as regards the unruptured variety, deferred operation is still advocated in the ruptured variety, in cases of extreme shock It is true that a certain percentage of patients recover spontaneously, especially in cases of tubal abortion, and occasionally early ruptures with the formation of hematoma and hematocele It is also true that patients die of hemorrhage as a result of ruptured tubal pregnancy or tubal abortion when not operated on

Moreover, it is undeniably a fact that both the mortality and morbidity of this disease are greatly increased by delayed operation In my series of 280 operations to date, there were four deaths, three of which were reported in detail in my previous papers on the subject published in 1907 and 1912 In one case, death followed a simple salpingectomy in an unruptured tubal pregnancy, and the other three deaths were undoubtedly due to delayed operation

Hemorrhage from a ruptured tube must be regarded in the same light as hemorrhage from any other source, and should be checked as quickly as possible, regardless of the severity of the shock On several occasions I have operated when the patient was unconscious and required no anesthesia, either general or local.

It is my firm belief, justified by the results obtained in the cases of extreme collapse, that, if the operation is performed with ordinary skill and rapidity, the additional shock will be so slight that it cannot possibly be held responsible for a single death, especially if infusion or transfusion be resorted to as soon as the abdomen is opened

Cases of tubal abortion and rupture present such a multitudinous variety in their course and termination that is is absolutely impossible to say from the signs and symptoms in a given case whether the hemorrhage will cease, or continue and become more profuse

Moreover, I have noted that the presence of blood in the peritoneal cavity was an important element in the vasomoter paralysis and shock The longer the patient was allowed to bleed from rupture or abortion, the greater the depression and the more profound was the shock, and this was regardless of the amount of blood lost Likewise, the recuperative power of the patient after the operation depended more on the duration of the hemorrhage and shock than on their intensity at the time of operation

Furthermore, the tendency to secondary shock becomes more marked as the interval between rupture and operation is prolonged

Every patient in profound shock, operated on by me recovered, and no patient was refused the benefit of operation as long as there was a cardiac beat

The technic employed in ruptured cases is practically identical today with the method employed by me in my first operations, twenty-one years ago The abdominal route is invariably employed, with the patient in the prone position Previous vaginal examination will as a rule determine which side is affected Through a median incision the hand is introduced into the abdominal cavity, and directed at once toward the affected side, the gravid sac or ruptured tube is enucleated and drawn into the wound By grasping the outer border of the broad ligament with the hand, or occasionally with a clamp, further hemorrhage is checked

No attempt is made to wipe away the blood or clots before the gravid tube is delivered at the wound, the steps of the operation having been carried out by touch only As a precaution in tying off the pedicle, sufficient blood is wiped away with damp pads to expose the pedicle clearly to view Before closing the abdomen the blood and clots are mopped out with damp gauze pads, drainage is never employed In case of extreme shock, intravenous saline infusion is given simultaneously with the opening of the abdomen

I cannot subscribe to the doctrine of deferring operation and trusting to chance, the inevitable result of which is rapidly to diminish the margin of reserve strength of the patient Nor can I see the wisdom of the rule of watching the patient with the view of waiting with operation when the patient is improving, and operating if she grows worse

If the patient's condition improves without operation, there can be no question that she would be better off because of the operation, and to wait until the patient grows worse entails an unnecessary loss of very precious moments, that may mean the possible sacrifice of life

Shock is assuredly no contraindication to the immediate operation for ruptured tubal pregnancy

1289 Madison Avenue

ABSTRACT OF DISCUSSION

Dr. E. Gustav Zinke, Cincinnati A woman who has been perfectly well, who misses menstruation once or twice, who believes herself pregnant and who has cramplike pains in one or both inguinal regions, with a palpable and perhaps pulsating tumor on one or both sides of the uterus, presents a perfect picture of extra uterine fetation Symptoms of ectopic gestation do not arise until either internal or external rupture takes place The pains experienced prior to rupture are tubal pains the result of distention and contraction of the tube, while the pains after rupture are caused by the blood coming in contact with the peritoneum

Tubal abortion is frequently not recognized and often terminates in spontaneous recovery If the case is properly diagnosticated, a hurried operation is never necessary Tubal rupture between the broad ligament never places the patient's life in immediate jeopardy, and there is plenty of time to prepare for an operation Tubal rupture into the peritoneal cavity, however, is always a grave accident Its symptoms are, usually, marked and characteristic, and the sooner the patient is subjected to an operation the more prompt the recovery As a rule, there is sufficient time to prepare for an aseptic operation

All cases of extra uterine fetation which result in subperitoneal hematoma peritubal hematocele or retro uterine hematocele should be brought to early operation Cases of advanced extra uterine pregnancies are nearly always easy of diagnosis and the patients should be operated on as soon as they can be made ready for the event. It is possible for a patient to bleed to death from a ruptured gestation sac within an hour or two though such an occurrence is extremely rare and is seldom brought to our attention The histories of carefully recorded cases of rapid fatal hemorrhage show that the great majority had been bleeding from twelve to twenty four hours A patient who bleeds to death within an hour could not be saved even by the man with the jack-knife and shoestring

Patients who are bloodless pulseless and completely exhausted are not good subjects for an operation They die during the event or soon thereafter The operator has done his duty, but where is the satisfaction? Weigh well the evidence in every instance

Dr J H Carstens Detroit I agree with the author of the paper and I have preached the same doctrine There are of course, exceptional cases I sent a patient home recently who had come to my office a few weeks previously She was as white as our stenographer's shirtwaist I could not feel her pulse She said she had been sick for four or five days I sent her straight to the hospital I had operated on this woman a year previously for retroversion of the uterus She was sterile and wanted to become pregnant I opened the tubes sewed them over and made a Gilliam operation She recovered and menstruated right along and had menstruated twenty-seven days before she came to my office There was nothing in the culdesac and no swelling on either side of the uterus On the ninth day I said she was to get up The next morning she was taken with a terrible pain and was in just as bad condition as the day she came in I waited a few days until she was stronger and then operated, as she developed fever I opened the abdomen and found a lot of blood clots in a cavity, well walled in, just above the bladder I lifted up the little sac, put a clamp on it and removed it. It proved to be a tubal pregnancy not more than two weeks old So you see we are sometimes greatly mistaken If I had operated the first or second day she would have died There are certain rare cases in which one had better wait a little.

Dr William W Golden Elkins W Va Unless I missed some of the statements which the author has made in reference to diagnosis, I am inclined to think that he has not enumerated all the symptoms I should like to call attention to a symptom or sign which I have observed in a small series of cases In cases in which bleeding from the uterus is present to a marked degree, there is a strikingly pale appearance of the cervix as compared with the mucous membrane of the vagina I know that this is contrary to what is stated in the textbooks I have, however, observed it in a small but appreciable number of successive cases. That no one should refer to this in literature is possibly explained by the fact that an inspection of the vagina is usually not made in cases of ectopic gestation I ask that you look for this sign in your future cases In the differential diagnosis the author asserted that the absence of fever favors the diagnosis of ectopic gestation, admitting, however, that fever is often present after rupture has occurred But in some cases rupture is a slow process and not evidenced by the typical critical symptoms In view of this it seems to me that it is not altogether safe to teach the general practitioner to be guided in the differential diagnosis by the presence or the absence of fever I have frequently seen practitioners mistake ectopic gestation for salpingitis because of the presence of fever

Dr Edward J McOscar, Fort Wayne, Ind It is rare that the opportunity offers to study the progress of ectopic pregnancy previous to rupture In some of these cases the first history which the physician obtains is that the patient has suddenly fainted and he finds her in a state of alarming collapse He may then learn that she has missed a period or two with subsequent irregular discharge of blood and clot attended with cramping attacks Last year nine patients came into my hands in whom there was rupture, and whom I had no opportunity to see beforehand Five were in collapse from free hemorrhage All were operated on without waiting and all recovered We must remember that hemorrhage is not shock and that shock is not hemorrhage These patients rarely have shock Shock results from trauma of sufficient force to do violence to the nerve centers A little tear of a tube is not a violent thing in itself, nor necessarily dangerous if there be no hemorrhage It is the hemorrhage that calls for intervention, and if we can operate quickly enough to stop the hemorrhage and get the patient to bed, she will recover

Dr. Louis J Ladinski, New York One of the points emphasized in the paper was that absence of temperature aids in the diagnosis of unruptured tubal pregnancy After rupture has taken place however, there may be elevation of temperature due to infection of the extravasated blood by the colon bacillus

The main object in presenting this paper was again to offer a plea for immediate operation in ruptured tubal pregnancy without any regard to the severity of the shock There is not a single valid reason, based either on theoretical grounds or practical experience, to justify delay in operation in tragic cases I have never seen a case result fatally in which the patient was operated on in the most profound shock, and I know of a number of patients who died from ruptured tubal pregnancy after operation, not because of the shock, but from complications due to delay It is generally admitted that patients die of hemorrhage due to ruptured tubal pregnancy when not operated on I had one experience of that kind The patient sustained a rupture while being examined in my office, and as this happened some years ago, at the time when the pendulum was swinging toward delay in operating, I was influenced by the fact and kept the patient in the office for more than an hour As she improved at first under morphin and stimulants, I was beginning to feel a false sense of security in the opinion then gaining ground that these patients never die of hemorrhage, but she suddenly grew worse and I transferred her by ambulance to a hospital within eight blocks of my office. She died as soon as she reached the operating room Had this patient reached the operating room, as she should have ten or fifteen minutes earlier she would have been saved

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Opium and Camphor—Since the beginning of the war, on account of greatly decreased imports of chemicals and medicines, including opium, the government of Japan has encouraged the production of the latter drug The output in 1916 was 2,535 pounds, and this year the amount is expected to be increased In the province of Osaka it is said the increase will be 20 per cent. over last year The estimated quantity of crude camphor to be produced for export from Formosa for the year ending April 1, 1918, is 7,056,720 pounds, 4,350,000 pounds of which, it is said, will go to the celluloid manufacturers of America Bad weather may, the Consul General at Yokohama reports (*Commerce Reports*, July 31 and Aug 2, 1917), reduce this amount considerably

Military Medicine and Surgery

THE CASUALTY CLEARING STATIONS

THOMAS HERBERT GOODWIN, C M G, D S O
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WASHINGTON, D C.

Prior to the present war, this unit was designated a "clearing hospital", but the nomenclature was altered to "casualty clearing station" soon after the commencement of the present campaign The unit corresponds, more or less closely, in organization, establishment and function to the "evacuation hospital" of the United States Army

The following remarks apply to the "casualty clearing station" of the British Army, and may possibly be found of service to officers doing duty with an 'evacuation hospital" of the United States Army

Establishment—This consists of a lieutenant-colonel, R A. M C, in command of the unit, six other medical officers, one quartermaster, eight sergeants, seven corporals, and sixty-two privates

Attached—There are three chaplains, one interpreter and six Ambulance Service Corps drivers (mechanical transport)

Transport—This consists of three 3-ton lorries

The sergeants are allotted for duties as follows nursing duties, 2, steward, 1, dispenser, 1, cook, 1, pack storekeeper, 1, clerk, 1, and general duty, 1

Two of the privates are trained in the use of carpenters' tools

Nursing Service—Nursing sisters are appointed, whenever circumstances permit, to a casualty clearing station

Function—The casualty clearing station forms a connecting link between the field ambulances and the stationary and general hospitals It receives patients from the field ambulances by means of the motor ambulance convoy, and it transmits them to the stationary and general hospitals by means of the ambulance trains It will be readily understood that the functions of a casualty clearing station must necessarily be very elastic, during periods of comparative inactivity it may act more or less as an advanced stationary hospital, transmitting only such patients toward the base as are unlikely to be fit for duty within a reasonable period, while during a period of active battle it acts as a "sieve," winnowing the patients, according to the severity and nature of their injuries, to the base, the "rest station," etc Again, a casualty clearing station may be allotted special functions, for example, one casualty clearing station may be detailed to deal entirely with cases of abdominal wounds, such patients being brought as rapidly as possible from the front to the special casualty clearing station, and there operated on and retained until fit for transport to, the base

Position—The position of a casualty clearing station in the area of operations must necessarily vary with the military exigencies of the time being

The unit will almost invariably be situated close to a railway station and within from 5 to 10 miles of the front line, but may not infrequently be pushed farther forward than this in order to lessen the journey of patients by road as far as possible

Organization—In European warfare, buildings will be utilized so far as possible but very frequently the accommodation will necessarily be in huts, tents, or a combination of all three

An important point to remember in the establishment and organization of a casualty clearing station is that it must be capable of rapid and very considerable expansion, ordinarily it is equipped for 200 patients, but it may — at short notice — be required to accommodate a very much larger number

Consequently it should always be insured that suitable ground is available for the erection of tents, and that any available buildings[1] are prepared for conversion into wards, etc, for patients, should the necessity arise

It will be found advantageous to organize a casualty clearing station into the following sections or departments, (*a*) reception, (*b*) cooking, (*c*) packstore, (*d*) nursing, and (*e*) operating

(*a*) *Reception of Patients*—Arrangements for the reception of patients must be carefully organized in order to prevent any possibility of confusion when large convoys of wounded arrive There should be a wide and clearly marked entrance for motor ambulances, with an equally clear separate exit to the main road This is necessary in order that ambulance vehicles may enter, unload their patients at the "reception" hut or building, and depart without being obliged to turn around or to cause any delay or obstruction to the vehicles behind

A "stretcher party" must always be on duty, night and day, in order to unload patients promptly on arrival In the "reception" room the patients are seen and rapidly sorted into groups, the lightly wounded being sent to one department, the seriously wounded to another, patients requiring immediate operation to another, etc Each department is worked by its own staff, and, during active operations, the personnel will be kept extremely busy

The reception room must be of ample dimensions, as many hundreds of patients may arrive at the same time, and must be rapidly and efficiently dealt with The admission and discharge books are here filled in by the clerks detailed for the duty

(*b*) *Cooking*—The kitchen arrangements must be complete in every detail, diets for every class of patient being required almost daily Soups and other hot drinks should be available at any hour for patients on arrival

(*c*) *Packstore*—Here the patients' arms and equipment are taken possession of, tied into bundles and labeled

(*d*) *Nursing*—This comprises the "hospital" section proper of the unit Wards should be organized and equipped for each class of patient, those for patients that are operated on being in close proximity to the operating theater, while those for patients less seriously wounded may be more distantly situated, possibly in tents The operating room, Roentgen-ray room, and "serious surgical" wards should be close to each other and conveniently situated

Lastly, the accommodation, comfort and feeding of the personnel of the unit must not be forgotten No pains should be spared to insure the comfort and well-being of the medical personnel, every member of which will be extremely hard worked Nursing sisters especially are rather prone, if permitted, to neglect their own well-being, and will cheerfully put up with any discomfort and possibly neglect their meals, while at the same time working themselves to the point of exhaustion in the interests of their patients This self-sacrifice is most laudable, but is certain to lead to breakdown if unchecked It will consequently be necessary for the commanding officer of a casualty clearing station to insure that the nursing sisters have comfortable quarters that they have a due proportion of rest and sleep that their meals are well cooked and served and that there is due insistance that they obtain their meals regularly otherwise during a period of stress it may be found that sisters and nurses will, if permitted work for twelve or fifteen hours at a stretch without food or rest

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[1] As a rough estimate of the number of slightly wounded patients that may be accommodated in a building for one night, it may be reckoned that in rooms over 15 feet but under 20 feet in width, one man can be accommodated for every yard of length, while in rooms 20 feet and more in width two men can be accommodated for every yard of length

It must not be inferred from the foregoing that work in a casualty clearing station is in a continuous condition of high pressure During battle periods the amount of work to be got through is enormous, the operating work especially being extremely onerous and every member of the personnel is working at very high pressure but during the comparatively "quiet" intervals matters are much easier and it is during these intervals that very much may be done in the way of organization in order to prepare for the busy days and nights in the future

Office Surgeon General of the Army

MEDICAL IMPRESSIONS IN A BASE HOSPITAL

MILTON MANDEL, M D
Major M R C U S Army Physician U S Army Base Hospital No 12 (Chicago)
FRANCE

After two months' experience as medical director of U S Base Hospital No 12 (a Chicago organization), stationed "somewhere in France," I have come to the conclusion that the American physician cannot afford to miss the opportunity which presents itself No other department in the service serves a more important function, and I am firmly convinced that the efficiency of the fighting force depends largely on the efficiency of the medical corps

Mr Julius Rosenwald of the Council of National Defense, in discussing the ultimate outcome of the war, tritely stated that it would be the "survival of the best fed" The physician not only passes on the fitness of the volunteer and conscript, and must dispose of him when he is sick or wounded, but is also of necessity the dietitian and the sanitarian

JUDGMENT AN ASSET

When dealing with thousands of men drawn from all walks of life, and representative of every social stratum, one realizes the necessity of carefully observing the workings of the human mind and of closely studying the individual

The most difficult task which has confronted us is distinguishing the real from the spurious By the latter I do not refer to the neurasthenic, who will be touched on later Every soldier who has seen active service knows the symptoms of the more prevalent diseases, such as trench fever, gas poisoning, and disordered action of the heart Occasionally he will recite to you in textbook fashion his symptoms, and will attempt to play on your sympathies, not because he is a slacker — there are none in the Army — but because he is tired physically and sometimes nervously It is this type of case which taxes one's judgment Sentiment must be utterly eliminated The individual must be subordinated to the cause which he serves A trip to "Blighty" is what he wants, but a few weeks in a nearby convalescent camp again puts him in shape for line duty

The severe physical and nervous exertion to which the military man is subjected necessarily lights up neurotic tendencies The more common neuroses encountered are, first, disordered action of the heart (D A H), second, shell shock hysteria, and, third, exhaustion neuroses

Disordered Action of the Heart—These patients complain of precordial pains These rarely simulate angina, more often the distribution and the radiation of the pain depend on the suggestive and leading questions asked Palpitation is an almost constant concomitant, but dyspnea on exertion is not usually mentioned by the uninitiated, whereas the veteran has learned that shortness of breath is highly suggestive of heart disease Anasarca of the extremities never occurs There are no changes in the size and shape of the heart but occasionally an accidental murmur is audible The blood pressure is unaffected Rest, suggestion and graduated exercise usually bring about prompt recovery

Shell Shock Hysteria—The hysteria and neurasthenia which develop in uninjured men after a severe engagement manifest themselves in innumerable ways, and almost invariably we are able to elicit a history suggesting a previous neuropathic tendency which antedates the war Hysteria is more likely to occur after shell shock, but may develop without apparent cause I have not had opportunity to observe many cases of shell shock, as these patients are sent to special neurologic hospitals However, it is not common to see cases of pseudomusculospiral paralysis coming on suddenly with wrist-drop and perversions of the sensation, which bear no relationship to the course of the nerve, also paraplegia of the lower extremities, developing while the patient is under observation for some other condition, without any sensory disturbance and, of course, with full retention of bladder and rectal control

Exhaustion Neuroses—The neurasthenia is usually the ordinary exhaustion neurosis, and is sent to us labeled "debility" Introspection, fatigue on slight exertion, despite the fact that the muscles are hard and firm, sluggish speech, weak voice and impaired memory are the common evidences

Functional neurologic pictures are the same as are those met in civil practice, only they are much more frequent, and quite naturally so

NEED FOR PRACTICAL MEN

I sincerely hope that the members of the medical profession will not wait for conscription There is plenty of work to be done, and hard working, practical men of ability are needed The ultrascientific man or the man with a hobby would feel very much out of place in a base hospital such as ours The work must be done quickly and accurately The compensation for the work is the satisfaction in knowing that one is "doing one's bit"

A PLEA FOR THE NONCATHETERIZATION OF THE URINARY BLADDER

IN CASES OF GUNSHOT WOUNDS OF THE SPINAL COLUMN

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Tradition and habit of mind are hard to overcome From the earliest history of medicine, it has been customary to insert a catheter into the urinary bladder whenever it became distended, without consideration of the underlying pathologic condition

To propose that a urinary bladder should seldom, if ever, be catheterized is radical, and such a broad statement demands analysis

I believe that logic and experience teach that in the cases of injury to the spinal cord, the urinary bladder should not be emptied by catheterization, unless there is a pathologic stricture of the urethra which would prevent overflow

A few years ago I had occasion to go over all the histories of a 1,500 bed general hospital These histories covered a period of twenty years, and after careful search I failed to find a single case of spontaneous rupture of the urinary bladder This in itself justifies the conclusion that a spontaneous rupture of the urinary bladder is extremely rare

In the cases of paralysis of the bladder wall, occurring in injuries to the spinal cord, the bladder may become greatly distended without pain or discomfort to the patient It has been my experience that it is practically impossible to catheterize a urinary bladder over any considerable period of time without infection, no matter how carefully aseptic the technic is carried out

Infection of the genito-urinary tract is particularly liable to occur in spinal injury cases in which the tissues suffer nutritional disturbances with accompanying lowered resistance It is well recognized that one of the most potent and frequent direct causes of death in injuries of the spinal cord is the acute cystitis and purulent pyelitis

Granting this, every measure should be adopted to prevent this inflammation, which I believe is practically always caused by the catheterization, as I have never seen a single case of cystitis in a patient suffering from a spinal cord injury that had not been catheterized That isolated cases may occur, I grant

One recognizes how difficult it is to carry out a proper aseptic technic in the catheterization of patients in the field

A natural question arises Are the tissues of the bladder or the kidneys materially damaged by allowing the bladder to become distended until it overflows?

I can only answer that, after practicing the procedure of noncatheterization for a period of ten years in patients suffering from a pathologic condition of the spinal cord, in a considerable number of cases I have not experienced any deleterious effects In one case of a benign spinal cord tumor, which was finally located and removed, the patient was allowed to go with a bladder distended to the umbilicus for nearly two years She finally regained complete control of the bladder function During this time there was no evidence of disturbance of or injury to the kidneys I never observed any evidence of disturbed kidney function from this practice of allowing a bladder to become distended and to overflow

In such cases the urine can be collected in a satisfactory way, so that the bedding is kept relatively dry and the patient comfortable

To what ultimate end does this noncatheterization of the urinary bladder in these spinal injury cases lead?

In my judgment, it protects the patient almost absolutely from the dangers of an acute, fatal cystitis and pyelitis, and allows for future surgical treatment of the cord if the pathologic condition is such as to permit it I am here assuming that it is practically impossible in the early hours or even days following the spinal injury to make a positive differential diagnosis of the exact extent of the lesion of the cord, that is, to distinguish between contusion, pressure from bone, blood or exudate, and a complete severance of the structure

I am not sure that it is ever possible to recognize the exact pathologic condition of the cord without the evidence obtained by surgical exploration, and I am not prepared to say that it would not be better surgical judgment to explore in every case However, it is not my purpose to discuss this phase of the question at this time My one thought is to make an urgent plea for the protection of these patients from immediate death caused by inflammation of the genito-urinary tract, which inflammation is, in my judgment, practically always due to catheterization I can see no justification in suprapubic drainage unless a severe cystitis exists

One case will suffice to illustrate my point, a case which Colonel Ballance saw in consultation It is probable that this patient could have survived the injury to the spinal column and cord, had the foreign body been removed and the lamina elevated, provided there had not been the superimposed cystitis and pyelitis

REPORT OF CASE

History—J H. (19483), private, aged 19, wounded, July 7, 1917, entered this hospital sixteen hours later with a gunshot wound of the back nearly in the midline opposite the first or second dorsal vertebra The wound appeared clean, and the patient's temperature was normal The findings of a complete transverse lesion of the spinal cord, namely, complete loss of motor and sensory power, absence of deep and superficial reflexes, hyperesthesia above the paralyzed area, and loss of bladder and rectal control were present The lesion corresponded to an injury of the cord opposite the third and fourth dorsal vetebrae

July 8, the patient was very tympanitic Vomiting was marked Phrenic nerve irritation was evidenced by persistent hiccup The bladder was distended but the patient was not catheterized while in this hospital, although a catheter had been passed several times at the casualty clearing station The patient had a marked cough, and both lungs were filled with râles, but no evidence of a penetrating wound of the chest was found His general condition was very poor and a laminectomy was not advised His temperature never went above 100

His condition became rapidly worse and he died, July 13 *six days after his injury*

The clinical diagnosis was gunshot wound of the back with spinal cord injury opposite the third and fourth dorsal vertebrae, pulmonary edema

Postmortem Findings—There was a gunshot wound over the second dorsal spine, which was fractured A foreign body (a piece of metal 1½ inches long) was embedded in the lamina of the fourth dorsal vertebra on the left side A few strands of clothing had been introduced with it The metal fragment was projecting into the canal, and some extradural pus was present over an area about 4 inches long in the region of the wound The cord itself was not injured No intradural hemorrhage was present There was one small patch of pus just below the site of injury with a slight softening of the cord in this area There was edema of the lung The heart was pale and dilated with no organic lesion, the muscles were softer than normal The liver, spleen and kidneys showed evidence of infection with an anaerobic gas-producing bacillus an early pyelitis was present In the bladder cystitis was present

The anatomic diagnosis was fracture of the second dorsal spine with compression of the cord, edema of the lungs, cystitis

SUMMARY

1 Infection of the genito-urinary tract is the most common and immediate direct cause of death in cases of gunshot wounds of the spinal cord and column, accompanied by paralysis

2 It is almost impossible to catheterize such a patient no matter how carefully it is done without an infection and subsequent inflammation of the genito-urinary tract Infection rarely, if ever, occurs without catheterization

3 Distention of the urinary-bladder, allowing it to overflow is not harmful to the bladder or kidneys

4 Many patients suffering from an injury to the spinal cord and column may ultimately be saved by surgical operation if they do not succumb to an early cystitis and purulent pyelitis

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MODE OF INFECTION, MEANS OF PREVENTION AND SPECIFIC TREATMENT OF EPIDEMIC MENINGITIS *

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This article has been prepared because of the appearance of epidemic meningitis among the armed forces of the United States, and for the purpose of bringing the essential facts of our present knowledge of that disease to the immediate attention of the medical officers responsible for the health of the troops and also of the physicians equally responsible for the health of the civil population

Epidemic meningitis, cerebrospinal fever, or spotted fever, as the disease is variously called, is an old foe of the armed camp, and having ravaged the European armies, has already attacked our own Moreover, it has prevailed in this country sometimes as epidemics, sometimes sporadically, without complete cessation, since the severe outbreaks of 1904 and 1905 At about the same period, epidemics of the disease appeared in many European countries, and within the next two or three years they penetrated into Africa, South America, Australasia, etc In other words, a pandemic of epidemic meningitis spread over the world between the years 1904 and 1910, since which time the disease has not again become quiescent in Europe or in this country In the United States each winter and spring has witnessed, now in one locality and now in another, the appearance of cases or groups of cases of meningococcus meningitis Thus, from the period of severe epidemics a number of foci in the country have remained over in which the meningococcus still persists

The meningococcus is unknown in nature aside from the human host Thus its survival is possible only in human beings, and present knowledge indicates that the persistence in a community is not attributable so much to active cases of epidemic meningitis as to the occurrence there of chronic carriers of the micro-organism, who either reside in the localities in which the disease continues to arise or, because of more peripatetic habits, move about freely from place to place As these carrying persons are both unsuspected and undetected, they become the malevolent, if innocent, agency through which the infection is kept alive and propagated

This situation, deplorable enough in ordinary times, becomes at once a serious menace when large numbers of recruits are assembled into camps The recruits are, in the first instance, of the ages more highly susceptible to the disease They form a body also which has for the most part escaped exposure either by reason of the immunity of the locality from which they come, or because of the circumstances immediately surrounding their individual mode of life Once, however, that they are brought together into large aggregations from widely divergent communities, the introduction of the meningococcus carrier among them, considering his distribution in the civil population, is a foregone conclusion The carrier being present, the close personal association inevitable in camp life prepares the way for the ready communication of the meningococcus to others

These secondary carriers, as they may be conveniently called harbor the meningococcus for shorter or longer periods of time A small part only are converted into chronic carriers of the micro-organism, while another part, of variable dimensions, develops meningitis Very soon, therefore, a vicious circle is established, since each carrier and each case of meningitis thus produced becomes potentially able to pass the meningococcus on to still other persons The object of the bacteriologic control of epidemic meningitis is the breaking of this circle, and it is best and may be successfully accomplished by the detection and detention of the meningococcus carrier

MODE OF INFECTION

The meningococcus enters and leaves the body by way of the secretions of the nasopharyngeal membrane Since no other avenue of entrance or exit is known, the bacteriologic control of epidemic meningitis centers on those membranes The meningococcus passes from the mucous membrane to the meninges, in which it multiplies still further and thus sets up an acute inflammation called meningitis It is not established whether the micro-organism passes directly to the nervous system by way of the lymphatic connections between the nasopharyngeal mucosa and the meninges, which extend along the olfactory nerves, or indirectly by way of the blood The former route is the one probably taken, but it not infrequently happens that the meningococcus may be cultivated from the general blood early in the course of the infection Moreover, the occasional occurrence during the meningitis of metastatic meningococcal inflammations, such as arthritis, panophthalmitis and endocarditis, indicates the ability of the micro-organism to survive in and be implanted from the blood However this may be, there is reason to believe that the meningococcus multiplies in the nasopharyngeal mucosa before

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* From the Laboratories of the Rockefeller Institute for Medical Research

* As the subject matter of this article is of timely importance the reprints have been prepared in advance of the publication in THE JOURNAL, and can be had by sending a stamped self addressed envelope this office or to the author

it invades the meninges, and the interval between the two processes may be brief or long, which is equivalent to stating that every case of epidemic meningitis develops out of a carrier

Two classes of persons harbor the meningococcus in the secretions of the nasopharyngeal mucous membranes first, persons suffering from epidemic meningitis, second, healthy carriers of the micro-organism The potential dangers from the two sources are unequal The ill patient is usually confined in bed, he does not tend to move about and come into contact with many persons While confined, he is dangerous to the doctor and the sickroom attendants and, if in a hospital ward, to other patients It is only when convalescent that, if not restrained, he menaces others The healthy carrier, being usually unsuspected, is unhampered in his movements He is a menace, therefore, to a wide and indefinite number of persons

In both instances the mechanism of dissemination is identical, and consists in the ejection of the nasopharyngeal secretions into the surrounding atmosphere This ejection does not take place during ordinary breathing and little, as a rule, during quiet speaking But in loud speaking and particularly in coughing, sneezing, hawking and spitting, the secretions may be sprayed and scattered widely

A more indirect means of communication is by way of the hands soiled with the secretions of the nose and throat, and by insects and particularly by house flies, which, becoming contaminated by feeding on the secretions, may carry them to the nose and mouth of other persons on whom they alight The meningococcus is, however, a fragile micro-organism, and does not long withstand ordinary air temperatures and the drying of the secretions containing them, once separated from the nasopharynx, it soon succumbs in external nature Probably the degree of viability of the meningococcus in external nature is not exactly indicated by cultivation tests, it is quite possible that in the more favorable medium of the nasopharyngeal secretions it will multiply when no growth takes place in artificial cultures

Not only has the connection between the spraying of the contaminated secretions and the occurrence of carriers of the meningococcus been shown, but the greater numerical relationship between violent spraying and carrier-production established Chronic carriers or patients suffering from meningitis, who suffered at the same time from a severe cough, gave rise to more carriers and contaminated persons over a greater area than has been found otherwise to be the case

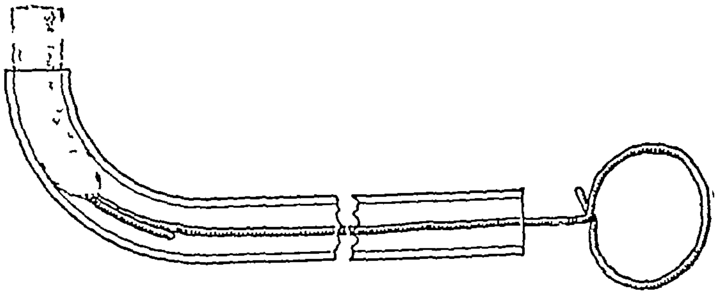
The time relation between carriage of the meningococcus, the occurrence of infection, and the development of the symptoms and lesions of epidemic meningitis has also been noted in a number of instances Sometimes the fact of the carriage has been discovered several days or weeks before the infection arose, sometimes the interval was so brief as to warrant the assumption that the individuals observed were already in the premeningitic stage of the infection when the bacteriologic examinations were made

Since the nasopharynx harbors the meningococcus practically always at the onset of the infection which eventuates in meningitis, there have been observed in the course of bacteriologic examinations instances in which the signs of meningitis were still absent, the cerebrospinal fluid showed few morphologic and chemical changes, and the meningococcus was not detected in the fluid by the microscope or in cultures — and yet the putting together of all the findings, including those of meningococcus in the nasopharynx, led to a diagnosis of epidemic meningitis, which subsequent events confirmed This possibility of very early diagnosis may be of high importance in view of the far better clinical results obtainable by means of specific therapy when it is promptly applied [1]

The cycle of events which lead to contamination and to infection with the meningococcus is now apparent A meningococcus carrier is introduced into a group of persons of the more susceptible ages Of the latter, a certain number become contaminated through aspirating the nasopharyngeal secretions which he ejects, of those thus contaminated, a variable number actually become infected and develop meningitis, while a larger number are converted either into temporary (evanescent) or more enduring (chronic) carriers The patient during the acute illness and for an indefinite period while convalescent is also a carrier Hence the number of carriers produced exceeds the number of cases of infection arising, from which it may be concluded that the individual susceptibility to epidemic meningitis is low

DETECTION OF CARRIERS

A special bacteriologic technic has been devised to discover the meningococcus in the secretions of the nose and throat The secretions are collected free of admixture with the saliva and the aerobic bacteria contained in them, and are grown in a medium favorable to the multiplication of the meningococcus



West tube Actual size Length about 16 5 cm

Swabbing —The secretions are obtained in a form suitable for cultivation by swabbing the nasopharyngeal mucosa While in skilled hands the open swab may be successfully employed, the employment of the West[2] tube can be highly recommended The instrument consists of a glass tube about 7 mm inside measurement, about 16 5 cm in length and bent at one end at nearly a right angle A copper wire carrying at one end a smoothed cotton swab is inserted inside the tube The swab is pulled back well within the tube, and both ends are plugged before sterilization When ready for use, the two plugs are removed

The tongue is depressed, and during phonation the tube is passed to the posterior pharyngeal wall, raised, and by pushing the copper wire forward the swab is extended about 6 to 7 mm After touching thoroughly the mucous membrane, which may be accomplished by turning the swab first to one side and then to the other the cotton plug is pulled back within the tube and the whole withdrawn

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[1] Gordon, M H Medical Research Committee, Special Report Series, No 3, 1917, p 19 Hereafter this pamphlet will be referred to merely as "English Report"

[2] West C. E Proc. Roy Soc. Med, Otological Section, 1910-11, 4, 43

The culture plate being ready, the swab is again pushed forward and the mucus deposited on the center of the medium This material is further spread over the surface with a bent platinum or nichrome wire The plates should be incubated at once at 37 C If this is impracticable, they should be enclosed in a box kept warm with hot water until they can be properly incubated Cooling of the plates and delay in incubation diminishes the number of successful isolations of the meningococcus from the nasopharyngeal secretion and the cerebrospinal fluid

Cultivation—The medium employed for cultivation should contain serum constituents or its equivalents The serum is preferred in the noncoagulated state The meningococcus does not develop at all in early generations, and often very little in later generations on ordinary nutrient agar medium Glucose agar to which blood or blood serum or ascitic fluid has been added yields a suitable medium The blood of man, rabbit or horse may be used, but bullock's blood is unsatisfactory The serum obtained from sheep's blood is not only suitable and satisfactory, but because of its availability is to be highly recommended It is employed in the form of Hiss' serum water

An eminently satisfactory culture medium is made as follows Lean beef or, because of cheapness, bob veal, is used for preparing the usual meat infusion Fairchild's or other suitable peptone is added The reaction is adjusted to 0 4+ phenolphthalein Dextrose is added to strength of 1 per cent Sterilization is accomplished in the autoclave

The serum is obtained from sheep blood collected at the slaughter house It is mixed, one part, with distilled water, three parts, and the mixture is sterilized by heating in the Arnold sterilizer on three successive days for thirty minutes, or in the autoclave at 15 pounds' pressure for forty minutes One c c of the serum water is added to each 5 c c of the melted agar medium previously cooled to 50 C The slanted tubes contain approximately 5 c c and the Petri plates 10 c c of the agar medium The slanted tubes can be kept on hand, provided care is taken to prevent drying of the surface, the plates are made as required

Vincent and later Olitsky modified this medium by adding litmus Olitsky employs 2 c c of a sterile 10 per cent litmus solution in distilled water for each plate (10 to 12 c c) of the sheep serum agar medium As the meningococcus ferments dextrose and *Micrococcus catarrhalis* does not, the colonies of the former assume a pink tint, while those of the latter remain blue. In fact, the medium is not as great an improvement over the colorless agar as might be supposed The meningococcus, as immediately isolated from human secretions, possesses weak power of fermenting glucose, and certain streptococcus colonies take on a pink hue and confuse the plate However, the colonies of *Micrococcus flavus* present an opaque yellow and greenish appearance readily distinguished

Horse serum in the proportion of 2 per cent may be substituted for the sheep serum water A medium even more favorable for the growth of the meningococcus than the sheep serum agar is prepared by putting into a Petri plate 0 25 c c of defibrinated rabbit blood laked in 0 5 c c of sterile water Ten c c of the melted agar cooled to 45 C are added, and the whole is thoroughly mixed All the mediums described are transparent, which is an advantage The colonies reach a larger size in the hemoglobin medium and certain meningococci grow there when they multiply little or not at all on the serum plates The original isolation of the colonies from the nasopharyngeal secretions is however assisted by the promoting action of the nasal secretions on the growth of meningococcus in cultures In practice the greater simplicity of preparation on a large scale of the sheep serum medium is an obvious advantage, especially for subcultures

The plates inoculated with the secretions should be incubated at 37 C for from sixteen to twenty hours (over night) They may then be examined immediately or after being set aside for four to six hours, during which time the colonies of *Micrococcus catarrhalis* continue to grow in size The latter become opaque and show sharply defined borders The colonies of the meningococcus are smaller and far more delicate, their outlines fade away into the medium Since form and texture are so important in the detection of the colony of the meningococcus, acquaintance with them should be obtained in advance by the study of pure cultures obtained as recently as may be possible from the cerebrospinal fluid or nasopharyngeal secretions The colonies of *Micrococcus flavus* in the young state and before pigment has appeared simulate those of the meningococcus, and may lead to temporary confusion

Microscopic appearance of the organisms is another guide The form of the meningococcus is more delicate than that of *Micrococcus catarrhalis* or *flavus* Moreover, full development and subsequent regression or involution are reached earlier The degenerated meningococci are strikingly irregular in size and variegated in staining properties Certain individuals stain deeply, many with little intensity Once the degeneration changes are learned, they give valuable aid in identification

The meningococcus, like *Micrococcus catarrhalis* and *flavus*, is gram-negative Two solutions, Sterling's gentian violet and Gram's iodin are employed for staining They are prepared as follows

Sterling's Gentian Violet—Five gm of gentian violet are ground in a mortar with 10 c c of 95 per cent alcohol After practical solution, 2 c c of anilin are added, and then 88 c c of distilled water The grinding is continued a short time, and after the mixture is permitted to rest a day or two, it is filtered through paper It has the merit of staining quickly and intensely and of keeping many months

Gram's Iodin Solution—One gm of iodin and 2 gm of potassium iodid are rubbed together in a mortar and dissolved in 300 c c of distilled water The filtered solution keeps indefinitely

The film, air dried and passed through the flame, or preferably fixed in methyl alcohol, is stained as follows The gentian violet is applied for one-half minute and washed or blotted off The Gram's solution is applied also for one-half minute, and after washing or blotting away the excess, the slide is immersed in a Coplin jar containing 95 per cent alcohol, for a few seconds It is advisable to move it up and down After washing away the alcohol, the counterstain consisting of aqueous safranin, is put on for from one-half to one minute or longer It does not overstain (The safranin stain is made by dissolving water soluble safranin in 95 per cent alcohol to saturation Ten c c of the alcoholic solution are mixed with 90 c c of distilled water The stain keeps)

The meningococcus, *Micrococcus catarrhalis* and *flavus*, and certain indefinite micrococci appear red, the pyogenic staphylococci, streptococci and pneumococci appear blue under the microscope.

IDENTIFICATION OF MENINGOCOCCUS

Colonies on the Petri plates, suspected of being meningococcus, are inoculated on the slanted sheep serum agar or other medium and incubated at 37 C. for from sixteen to twenty hours. The resulting cultures are subjected to (*a*) microscopic examination and (*b*) to agglutination; in addition, but not necessarily, (*c*) the fermentative effects on sugar may be ascertained. The final test is that of agglutination, but it is well to bear in mind that the meningococcus ferments glucose and maltose with acid production but not saccharose, while the *Micrococcus catarrhalis* exerts no action on glucose, and a number of more indefinite gram-negative micrococci occurring in the nasopharynx from time to time ferment saccharose.

Agglutination.—For the purpose of the rapid identification of the meningococcus, a polyvalent serum prepared in the horse is employed. Such a serum if actively agglutinating is not impaired when preserved with 0.2 per cent. tricresol and kept at refrigerator temperature. Hence stock therapeutic serums may be employed. In every instance the stock serum must have been proved by appropriate tests to be agglutinating against established strains of the meningococcus in dilutions of from 1:200 to, say, 1:2,000.

The test is made by the macroscopic method. The culture on the serum agar slant is washed down with from 1.5 to 3 c.c. of 0.8 per cent. sterile saline solution according to the amount of the growth. The serum dilutions consist of 1:50, 1:100, 1:500, 1:1,000 and 1:2,000 strengths. To each 0.8 c.c. of the latter, 0.2 c.c. of the emulsion of the micrococcus is added. After thorough mixing, the tubes are incubated at 55 C. for sixteen hours (over night). Suitable saline controls of the cultures are carried along. The readings of the tubes are made at once, and the usual signs are employed to designate degree of agglutination. Test tubes 9 by 1 cm. in size are preferred for the test.

The meningococcus does not agglutinate spontaneously in salt solution. A true meningococcus is completely agglutinated (++) in a 1:200 dilution of active polyvalent serum, and usually in higher dilutions than this. Other gram-negative micrococci are either not agglutinated at all, or not in dilutions greater than 1:100. *Micrococcus flavus* sometimes agglutinates in normal serum 1:50 and in polyvalent and monovalent meningococcus serums 1:100 or even greater dilution. It is distinguished from meningococcus by its indiscriminate agglutinability and by its cultural properties. When normal serum is available, a control in 1:50 dilution may advantageously be added to the test series. Any culture which fulfils the cultural and microscopic conditions, and which is agglutinated in 1:200 dilution by the polyvalent antimeningococcic serum, is accepted provisionally as meningococcus, and the person from whose nasopharynx it was obtained is regarded as a carrier.

The number of colonies possessing the characters of the meningococcus, which develop from the nasopharynx of different persons, fluctuates widely. The number may be so large as to yield what is virtually a pure culture on the plates, or it may be so small as to demand skill and much patience for their detection. The usual condition falls between these extremes. While precise information on this point is lacking, it is to be presumed that the larger the number of meningococci thrown off with the secretions, the greater the danger of contamination of others. The rate at which the carriers clear up or become meningococcus-free is determined also, in part, by the degree of contamination. When few colonies can be cultivated from the nasopharynx, the tendency is for clearing to take place more quickly than when an abundant growth is obtained.

TYPES OF MENINGOCOCCUS

The meningococcus, like several other micro-organisms, and notably the pneumococcus and dysentery bacillus, is not a consistent species, but consists of several closely related varieties of types. The cultural features of the several members are identical; they are distinguished by their immunologic properties. The point is an important one, since on its recognition depends, in large measure, the successful application of the specific serum therapy.

The nomenclature employed to designate the varieties or types varies in different countries. That there is no general agreement is regrettable. This matter is not, however, one that can be adjusted readily, since it follows in part from the occurrence of intermediates between the more stable types.

Until Dopter's[3] studies published in 1909, no distinction was made between various cultures of the meningococcus. He was the first to discover that the prevailing type (called normal or regular) of the microorganism was distinguishable immunologically from a second type called by him para, which existed not infrequently in cases of epidemic meningitis occurring in Paris. These findings have been generally confirmed and have exerted a marked influence on the prophylaxis and specific serum therapy of the disease. An immune serum prepared with the normal cultures contains agglutinin and other antibodies for its own type and little for the other type, and vice versa. It is possible to absorb this common agglutinin for the two types, leaving the quantity of specific agglutinin unaffected.

Still closer analysis has, however, shown that besides the normal and para types, certain intermediates occur approximating one or the other in immunologic properties. English[4] bacteriologists have, indeed, set up a classification which seeks to range all the cultures into four classes or types, which they designate I, II, III and IV. This differentiation is based on the method of elective absorption of agglutinin just mentioned, and was carried out with cultures derived from the cerebrospinal fluid of cases of epidemic meningitis. The Type I of the English classification appears to correspond to the para, and Type II to the normal or regular meningococcus. Types III and IV appear to conform to the more common intermediates.

The conclusion from the immunologic studies, which have now been carried out abroad and in the United States with painstaking care, is to the effect that two fixed types and certain less fixed ones of the meningococcus exist in nature, and representatives of any of them are capable of infecting the cerebrospinal meninges and of inducing epidemic meningitis; and to combat the disease thus caused, a polyvalent antimeningococcic serum in the true sense must be employed This antiserum must, to be effective, carry adequate antibodies for the fixed types and for as many of the intermediates as may be available as well

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[3] Dopter, C.: Compt. rend. Soc. de Biol., 1909, 67, 74. Wollstein, M.: Jour. Exper. Med., 1914, 20, 201.

[4] Ellis, A. W. M.: Brit. Med. Jour., 1915, 2, 881. Gordon, M. H.: English Report, p. 10.

The types of meningococcus which occur in the cerebrospinal fluid must correspond with those existing in the nasopharynx, if the statement already made, that every case of epidemic meningitis arises from a carrier, be true The recent English studies are conclusive on this point, and establish this relationship Moreover, certain as yet unpublished studies made in this country point to the same conclusion Furthermore, in that form of contamination by a carrier which gives rise to many other carriers the type of meningococcus present tends to be identical in all The occupation of the mucous membrane by a given variety of meningococcus seems to make the implantation of a second variety infrequent The English studies which are the only ones thus far which cover this point, point to this inference[5]

The identification of the meningococcus by the agglutination test has had the effect of excluding, as meningococcus certain micrococci present in the nasopharynx which on cultural, microscopic and staining properties, would have been classed with that microorganism In this way the number of supposed carriers has been reduced about one-third Even so, the number of carriers proved by the agglutination test still exceeds greatly the cases of meningitis arising, and may be four to five times as numerous as the latter

PREPARATION OF POLYVALENT AND MONOVALENT ANTIMENINGOCOCCIC SERUM

Polyvalent Serum —The therapeutic polyvalent serum which can also be used for identifying the meningococcus is prepared in the horse To produce a true polyvalent serum, representative cultures of the fixed types and available intermediates are used for inoculation The cultures employed for injection are first tested against monovalent serums to insure that normal and para types are selected By means of type monovalent serums, intermediates can also be selected, and as the immunization of the horses proceeds, they are added to the material injected until the agglutinins developed adequately represent all the cultures employed As the immunization extends over many months, while the serum is being collected and used therapeutically, any further deviating cultures which come to hand are added to the stock employed for inoculation, replacing, for the time, normal or para strains for which the agglutinins are already sufficiently developed

Experience with the specific serum treatment of epidemic meningitis has emphasized the importance of this general method of procedure Hence to reduce the preparation of the polyvalent serum to routine is to endanger the efficacy of the product The production of a true polyvalent serum of high titer demands intelligent operation and constant vigilance Already sad and costly disappointments have followed the employment of commercial products believed to be trustworthy Any one intelligently engaged in the preparation of the serum must keep in constant touch with the clinicians employing it in practice, in order that he may investigate the causes of failure in certain obstinate cases of epidemic meningitis This failure may be due to one of several causes, and may be attributable to the infecting meningococcus being unrepresented among the antibodies, as indicated by agglutination, in the serum When this happens, the particular culture is used in the subsequent injections of meningococcus into the horses in order to develop the antibodies peculiar to it

This brief sketch should suffice to indicate the far greater care demanded to prepare an efficient antimeningococcic serum than, for example, to produce antidiphtheria or antitetanus serum, which relatively are simple products There is still another point emphasized by Amoss, namely, that a test bleeding of the horses should precede the regular bleedings, in order that the balance of immune bodies as indicated by the agglutinin content for type cultures may be determined The titer adopted by us is that of agglutination in 1 1,500 to 1 2,000 dilution for the main normal and para types and for the several intermediate varieties used for inoculation It is desirable particularly to warn against titration of the serum with one or two cultures of meningococcus which happen to be highly agglutinable

The commercial standardization of the antimeningococcic serum is highly desirable—indeed, is demanded in the interests of the public welfare The impression may have been gained that this is not readily accomplished because of the variability of the meningococcus cultures But what must be kept in mind is that three or four types represent the great preponderance of meningococci causing epidemic meningitis, and it is entirely feasible to standardize the serum with reference to those types This action would be a great step forward, and would in no wise prevent particular persons or institutions from preparing serum representing the intermediate varieties as well

The formulation of standard requirements should contain also a definition of the ordinary or gross physical properties of the serum For example, the serum should be uncolored by hemoglobin or its secondary compounds This is a matter of first-rate importance The intraspinal injection of serum carrying considerable quantities of those compounds increases the severity of the reaction and may lead to serious accidents

Finally, there might even be recommendation as to the chemical preservative to be employed The experiences of many years now may be drawn on to cover this point The preservative to be preferred would appear to be tricresol, of which 0 15 to 0 2 per cent is an adequate amount to prevent bacterial contamination of a serum collected and bottled in a strictly sterile manner Chloroform has been substituted for tricresol or phenol It is an efficient antiseptic, but it is objectionable because of the pain, sometimes very severe, which attends the intraspinal injection of the chloroformed serum Tricresol, on the other hand, exerts something of an analgesic effect

Monovalent Serum —Since the polyvalent serum is made on a large scale primarily for therapeutic purposes, more precise details of its preparation are not in place here The monovalent serums, on the other hand, are prepared for use in the identification of the types and varieties of meningococcus and for the purpose of correlating cultures obtained from the naso pharynx with those present in the cerebrospinal fluid They are best made in the rabbit, and can be prepared in any bacteriologic laboratory

Young rabbits are chosen, as they yield serum of higher titer Male rabbits weighing from 1,500 to 1,800 gm are to be preferred, but females will suffice, and animals somewhat lighter in weight may also be used There is a choice of method for immunizing the rabbits The two representative ones will be described

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[5] Flack M English Report, p 60

Amoss proceeds as follows The meningococcus to be inoculated is transplanted to slanted plain glucose agar After sixteen hours' incubation, the growth is suspended in 10 c c of 0 8 per cent salt solution Of the suspension, 0 1 c c, or one one-hundredth of the culture, is diluted to 2 c c with the saline and injected intravenously The same dose and procedure are repeated with a fresh culture on the second day, and the same procedure with a dose of one eightieth of a culture on the third day After an interval of five days, one eightieth of a culture, followed the next day by one fiftieth and the third day by one twenty-fifth are injected Two days later the animal is exsanguinated and the serum collected

The English method[6] employed in the army consists in inoculating stock emulsions of meningococcus killed by heat and preserved with phenol The emulsions are said to bear storage for several months, and besides yielding satisfactory agglutinating serums, to be adapted to agglutination and absorption tests

The emulsion is prepared from growths of the meningococcus on Petri plates which have been incubated for twenty-four hours at 37 C About six plates are used for a batch Over each plate a few cubic centimeters of 0 8 per cent sterile salt solution are poured, and the growth is detached from the surface and distributed in the saline The emulsions are examined microscopically to insure purity, and then mixed and heated to 65 C for half an hour to prevent autolysis After the heating, which appears to help the meningococcus to emulsify, the emulsion is standardized 0 1 c c is placed in a special tube kept for the purpose, and clear tap water is then added from a 5 c c pipet graduated in 0 1 c c divisions, until the contents of the tube are just perceptibly turbid to the naked eye as compared with a control of pure tap water The "end-point" is taken to represent a content approximately 100 million of the meningococcus per cubic centimeter The amount of dilution needed to reduce 0 1 c c of the emulsion to the end-point having been determined and the bulk of the emulsion being known, it is quite simple to so dilute the emulsion with saline that it contains 2,000 million meningococci per cubic centimeter Five-tenths per cent phenol is added as a preservative The emulsion so prepared and standardized suffices to inject rabbits and to perform agglutination and absorption tests For the last, an emulsion of double the strength is preferred The emulsion keeps for several months at refrigerator temperature

For preparing agglutinating serums, the procedure is as follows The rabbits receive intravenously 1,000 of the killed and emulsified meningococci, and an hour later a second injection of 500 million On the sixth day afterward, 3,000 million are injected A test bleeding is made two days later If the agglutination titer is sufficiently high (from 1 400 to 1 800 by the macroscopic method), the animal is bled to death on the ninth day The clear serum is separated and stored in the cold, preferably without preservative

Whatever the method employed, some of the rabbits will not survive the immunization period Hence it is necessary to carry out the inoculation in series of, say, two or three animals for each culture type or variety injected

NUMBER, DURATION AND TREATMENT OF CARRIERS

Number—Meningococcus carriers are distinguished according as they have arisen from a known previous carrier or from a case of epidemic meningitis or insidiously without such known association The one is termed "contact" and the other "noncontact" carriage The distinction is not entirely academic For instance, if a bacteriologic examination be made of the nasopharynx of a general population without reference to particular cases of meningitis or carriers of meningococcus which may have arisen, the percentage of contaminated persons detected will be smaller than among the immediate persons in contact with the known cases or carriers

The older figures from various sources indicate that during the prevalence in some degree of epidemic meningitis, about 2 per cent of carriers exist among groups of persons representing the general community In arriving at this result, cultural properties, not agglutination reaction, were employed to identify the meningococcus, and yet the figures have been essentially confirmed by the later and more precise observations

The recent English studies extend our knowledge in important ways Flack,[7] for example, found among 275 noncontacts, who were swabbed, 2 18 per cent of carriers, among 832 men from an epidemic area, 4 39 per cent of carriers, and among 1,629 actual contacts, 8 53 per cent of carriers All these were confirmed by agglutination The larger number of actual contacts was made up of the following groups regimental, who gave 10 98 per cent, hospital, who gave 7 18 per cent, and outside commands (hospital and other contacts), with 5 53 per cent of carriers These figures illustrate the determining factor of close association

The question will arise whether, for example, it is feasible to examine bacteriologically large numbers, thousands say, of exposed persons in a military camp without excessive disturbance of the usual routine Theoretically, the task is one not at all beyond relatively a simple laboratory organization With sufficient stocks of culture mediums and trained technical help, three or four bacteriologists, skilled in the detection of meningococcus, could complete such an undertaking in a comparatively short time and without serious disorganization of camp life An instance of the swabbing of 10,000 men is recorded in the English report[8] This large number included not only immediate contacts, but also a large garrison which, so far as ascertained, had not been in direct contact with actual cases of meningitis The number of persons carrying micro-organisms resembling meningococcus was 410, but subsequent agglutination tests eliminated about one third of these, who were immediately set free

Duration—The persistence of the carrier state has been especially studied by Flack, whose figures are based on 185 examples, of which 124 had and sixty-one had not been in known contact with a case of meningitis or another carrier The average duration among the former was 4 65, among the latter, 3 68 weeks Within the first two week period, the percentage becoming clear was 20, within the first four week period 52, while about 5 per cent endured beyond the twelve week period The weather conditions seem to play a part It was noted that following a week of sunshine, with little rain, the clearing up process was accelerated

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[6] Hine, T G M English Report, p 99

[7] Flack M English Report, p 52 et seq

[8] Tulloch, W J English Report, p 70

In rare instances, the duration continued for long periods Examples of carriage for six, twelve and fifteen months with, however, eventual disappearance of the meningococcus are recorded In the great majority of carriers, the nasopharyngeal mucosa is normal When inflammatory conditions of the mucosa and tonsils exist, they would appear to be accidental On the other hand carriers who suffer from tonsillitis and catarrhal inflammations of the nasopharynx tend to lose the meningococcus more slowly than normal persons

(To be continued)

Therapeutics

ACUTE DIARRHEA IN INFANTS

It is not our purpose to discuss this subject elaborately, but merely to recall a few therapeutic suggestions

1 With beginning abdominal disturbance we must consider, in infants typhoid fever, dysentery, appendicitis, and infection of the kidneys, to say nothing of more serious conditions, as obstruction During a diarrhea we must watch for symptoms of acidemia, and for meningeal complications

2 Eruptions that may be present may be due to food poisoning, other protein poisoning, or to drugs

3 We should seek for sources of focal infection, perhaps in the tonsils or in the ear, or perhaps a serious bronchitis or other lung condition It should be recognized that streptococcic focal infections may cause diarrhea

4 The child should always be kept in the fresh air, and outdoors, in the shade, if the weather is hot If possible, a speedy removal to the seashore or to the country is advisable This therapeutic measure should not wait until the child is hopelessly ill

5 Castor oil should be given

6 Food should be withheld

7 Plenty of water should be given If the child cannot retain water in the stomach, after a colon wash, it may be retained in the colon If water is continually lost by the body, and cannot be retained in the stomach or colon, hypodermoclysis is advisable Many a diarrheal patient dies from lack of water

8 In twenty-four hours (sooner if the patient is very weak) lactose, in from 3 to 5 per cent solution, in water, should be given

9 If the patient is acidemic, starch water and sodium bicarbonate should be given in small, frequent doses Thin oatmeal gruel may be given

10 If there are frequent small stools, with considerable tenesmus and pain, the lower bowel should be washed out with 0 7 per cent sodium chlorid solution once or twice daily This should be done very gently If it causes prostration, it should be stopped

11 While these treatments are going on, the stools should be examined for bacteria, to ascertain what pathogenic germs we must combat If the gas bacillus is found, Bulgaria bacilli tablets may be crushed and administered in sugar and water, or in whatever nutriment is being given

12 If the stools are fetid, and especially if there is a tendency toward incomplete evacuation of the bowels, small doses of yeast may be given, in water, as one twentieth of an ordinary yeast cake, once a day

13 Phenyl salicylate, in 0 03 gm doses for a child 1 year old, may be given every three hours for a day or two, and then every six hours Older children should receive a larger dose

14 If there is much irritation of the stomach or upper intestine, milk of bismuth may be given It should not be given too long, and is of no value given by the mouth in colitis

15 If the child is hot, it should be sponged with tepid water and kept cool If it is cold, it should be kept warm with dry heat So-called antipyretics should not be given A good working rule is to keep the abdomen warm, and the rest of the body cool

16 If stimulation is required, very small doses of atropin, or very small doses of strychnin, or both, may be given

17 If the child becomes constipated, and the bowel condition is troublesome, another dose of castor oil may be given

18 The mouth should be kept clean, but all measures should be gentle The usual antiseptic precautions should be used for all nose and mouth secretions, for the diapers, and for cleansing the clothing and bed linen

19 It is well to keep petrolatum spread over the anus and buttocks This prevents irritation from the excretions, and is not conducive to germ growth

20 As soon as advisable, the food should be increased by giving malted foods or malted gruels, and later by pasteurized milk, but the diet should be kept low until the abnormal temperature ceases and the stools are less frequent and contain no blood

21 A gradual return should be made to the regular milk or mixed diet of the child

22 Occasionally, when all measures seem to fail, if the child is a bottle-fed infant, a wetnurse may be a life saver If the child is a nursing child, the mother's milk may be at fault, and all other possible sources of infection should be sought

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New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION W A PUCKNER, SECRETARY

GASTRON—A solution of the gastric tissue juice obtained by direct extraction from the mucosa of the fresh stomach of the pig and containing the activated principles of the gastric cells, the enzymes and the associated organic and inorganic constituents in an acid, aromatized menstruum containing 25 per cent glycerin by weight It has an acidity corresponding approximately to 0.25 per cent absolute hydrochloric acid, and 1 Cc. dissolves 200 Gm coagulated egg albumin under standard conditions

Actions and Uses—Gastron is claimed to exhibit the characteristic enzymic properties of gastric secretion It is designed to present in a stable form a complete gastric gland extract for use in disorders of gastric functions

Dosage—From 4 to 8 Cc. (1 to 2 fluidrachms) diluted with a little cold water or with acidulated water It may be administered before, in divided doses during, or after meals

Manufactured by Fairchild Bros. and Foster New York. No U S patent, U S trademark No 65 397

Gastron is a viscid slightly opaque, straw-colored fluid Heat and strong alcohol cause coagulation of gastron

One Cc. of gastron in water acidulated to 0 3 per cent. hydrochloric acid is capable of dissolving 200 Gm coagulated fresh egg albumin when treated according to the method for the valuation of pepsin of the U S P IX.

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SATURDAY, AUGUST 25, 1917

THE CITY MILK PROBLEM

The enormous improvement effected in the quality of the milk supply in the last two decades has been highly satisfactory from the sanitary point of view, but certain developments associated with this improvement have been more or less disquieting. The principal cause of complaint is the great increase in the cost of milk to the consumer. Part of this increase is perhaps justified by the expense of throwing sanitary safeguards around the supply, but there is question whether the rise in price can be altogether explained in this way. The truth seems to be that the milk business in many cities has become practically a monopoly, that the concentration of distribution in the hands of a few large companies has been of marked disadvantage to the producers and in some respects to the consumers, and that the price paid for distribution has become disproportionately high. The consumer in many cities pays double or more than double the amount per quart received by the producer from 20 to 50 miles away. It cannot be gainsaid that any unnecessary increase in the cost of milk to the city dweller entails grave hygienic as well as economic disadvantages.

In point of fact, it is impossible to separate sanitary from economic interests. The delivery of wholesome milk as cheaply as possible is manifestly what the community has a right to demand. The entire milk supply should be guarded at its source and throughout the process of distribution. Pasteurization should be extensively employed. While unnecessary elaboration of detail should be avoided, legitimate, carefully thought out measures for protecting the quality of the supply will be cheerfully supported by the majority of intelligent citizens. But objection is growing to any addition to the cost of milk based on advertising and other wasteful competitive methods, on duplication of milk routes, on high profits obtained by distribution companies, and on all methods of collection and transportation not expressly justified on sanitary grounds.

The community has taken over without material opposition the task of sanitary inspection and supervision of the milk business. There are many who believe it should also assume the work of prompt transportation, of uniform and centralized pasteurization, and of economically efficient delivery. No one cognizant of the facts can doubt that, in the present system of bringing milk from the producer to the consumer, the cost of milk to the latter has been increased beyond what is fair and reasonable. Privately owned and managed plants for distributing water in modern cities have almost disappeared, milk supply is today perhaps second only to water supply in its importance for the public health. There are obvious difficulties in the way of the complete municipal control of the milk distributing business, but in some respects they are not so great as those encountered in the waterworks management.

It may be taken for granted that the usual objections will be raised against the assumption by the public of functions heretofore mainly in the hands of private individuals, but doctrinaire objections are not especially daunting to the much exploited city dweller. If the public control is more satisfactory to consumers, all things considered, than private control, there is little else to be said about it. It would be of great service if an experiment in municipal milk handling should be made by several favorably situated communities. Whether this proved a success or a failure, we should at least obtain some data on which to base opinions and perhaps further action. Certainly the present situation with respect to the cost of milk distribution to the consumer is not without further study to be accepted as the best in the best of possible worlds.

THE NEWER CONCEPTION OF ACIDOSIS

Those who have become acquainted with the word "acidosis" since its introduction into scientific medical literature can scarcely help experiencing some confusion of ideas when they attempt to interpret the meaning of this now widely current term. Naunyn first employed the word to denote that perversion of metabolism in which betahydroxybutyric acid is formed. Subsequently "acidosis" was the name given to other conditions in which acids of any type tend to upset the acid-base equilibrium of the body. The production of betahydroxybutyric acid is an incident in the disordered metabolic changes that lead to an output of ketone substances by the organism. This abnormality is now known to have a significance of its own, namely, in the indication that fatty acids derived either from fats or from amino-acids are being incompletely oxidized, and since this may exist without any conspicuous acid intoxication, it seems advisable to reserve a specific designation for this perverted metabolism of fatty acids. It has thus repeatedly been proposed to indicate the excretion of ketone bodies as 'ketonuria,' while Allen[1] has suggested for the metabolic condition which gives rise to them the concise and specific term "ketosis"

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[1] Allen, F. M., Am. Jour. Med. Sc., 1917, 153, 313.

What, then, is the expression "acidosis" to be understood to mean if it shall no longer be applied specifically to the condition in which acetone or ketone bodies are formed? It has been applied somewhat vaguely to "acid intoxication", and more recently with the advent of the newer physicochemical conceptions of acidity, acidosis has been identified with an actual increase in the hydrogen ion concentration of the blood As a matter of fact however, it has been clearly established that, owing to the remarkable regulatory devices of the organism, the reaction of the blood not only is constant under normal conditions but may even be kept so under pathologic stress involving great lowering of the alkali reserve But whether the cause of the phenomenon described as acidosis is the production of acid, or the ingestion of acid or the lack of alkali in the food, whether it is due to a failure to eliminate acid or to a failure to produce and eliminate the neutralizing ammonia — in any event it must always involve a depletion of the body's alkali reserves Van Slyke[2] and his collaborators at the Hospital of the Rockefeller Institute, New York, have clearly pointed out that free carbon dioxid is present in the body fluids in such concentration that it automatically converts into bicarbonates all bases not bound by other acids The bicarbonate therefore represents the excess of base which is left after all the nonvolatile acids have been neutralized and is available for the immediate neutralization of further acids In this sense, says Van Slyke, it constitutes the alkaline reserve of the body The bicarbonate concentration of the blood is representative of that of the body fluids in general, and is normally maintained at a definite level Entrance of free acids reduces it to an extent proportional to the amount of the invading acid

L J Henderson of Harvard University has been preeminently responsible for the acceptance of the blood bicarbonate as a criterion of the acid-base balance of the body He has lately remarked in the Samuel D Gross lecture[3] for 1916 that we come nearest to certainty if we say that acidosis must involve a depletion of the body's alkali reserves, and specifically a depletion of the bicarbonate of the blood So long as this has not taken place, he adds, the pathologic condition cannot amount to much, so far as the acid-base equilibrium is concerned, when this defect is established, the whole chain of causation, involving breathing, oxidation, nitrogen metabolism, renal activity, etc, has been set in motion As a practical maxim Henderson therefore describes acidosis as a state of diminished bicarbonate of the blood

Van Slyke and Cullen[2] have insisted that since the normal concentration of the blood bicarbonate is so definite as to constitute a physiologic constant, the limits of variations being similar in magnitude to those of the pulse rate, we can reduce the term "acidosis" to as definite a meaning as "fever" or "tachycardia" Heretofore acidosis has been detected or measured in a variety of ways The blood plasma has been titrated directly, the carbon dioxid content or capacity of the blood has been determined, the hydrogen ion concentration has been ascertained, the carbon dioxid content of the alveolar air has been measured, the urine has been examined for evidences of acid excretion Fortunately, Van Slyke and Cullen[2] have devised a simple technic by means of which the capacity of the plasma to combine with carbonic acid (formed by carbon dioxid) under definite tension is determined as a measure of the alkali in excess of acids other than carbonic It seems likely that this will find application as a clinical procedure, since it involves merely the withdrawal of a sample of blood so far as the patient is concerned, and it is free from psychic and other factors that affect the now widely tested estimation of alveolar carbon dioxid tension as an indication of the severity or progress of an acidosis It is stated that the results obtained with a given plasma are reproducible to within 1 per cent of carbon dioxid, 65 volume per cent being the average normal value for man In acidosis the carbon dioxid capacity of the plasma falls so far below the normal that the method is a most sensitive indicator of this condition and its severity

There is, however, another simple though crude physiologic test of acidosis which involves little skill in its execution It consists in ascertaining the amount of soda, administered by the mouth, that is required to make the urine alkaline For normal persons, the addition of 5 or 10 gm to the food will suffice, but an organism whose store has been depleted will retain alkali, so that if more than 10 gm of soda are required, experience justifies the conclusion that a state of acidosis exists If, as Henderson thinks, acidosis is probably more common than fever, the test for it should always be made The alkali can be administered for therapeutic ends too The use of soda does not remove the cause of the acidosis, but it does protect the alkali reserve, pending the discovery of the etiologic defects Accordingly, Henderson has offered the following precept The duty of the physician is to discover whether the quantity of sodium bicarbonate in the blood is diminished, to restore that quantity to normal, and to hold it there But while restoring it, he must never increase the quantity above normal Thus founding practice on exact knowledge, on theory fully confirmed, and on an understanding, however imperfect, of the organization of all the manifold processes of metabolism, he may hope sometimes to block a cycle of changes leading to final disintegration, and perhaps more often to alleviate discomfort and pain

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[2] Van Slyke D D and Cullen, G E. Studies of Acidosis I The Bicarbonate Concentration of the Blood Plasma Its Significance and Its Determination as a Measure of Acidosis Jour Biol Chem 1917 **30,** 289

[3] Henderson L J Acidosis Science July 27 1917 p 73 This is a singularly illuminating discussion of the problems here under consideration. See also the Studies of acidosis by Van Slyke D D et al in the Journal of Biological Chemistry 1917 **30,** 289 ff from which many of the features discussed above are taken

CREATIN AND CREATININ IN BLOOD

In health the urine of human adults rarely contains any noteworthy amount of creatin despite the constant presence of the closely related substance creatinin In fasting and certain diseases, particularly such as are attended with more or less inanition, creatin may make its appearance in the secretion from the kidney It is found in the urine of women after postpartum resolution of the uterus, and children commonly excrete creatin along with creatinin until the middle years of childhood

Underhill[1] has lately pointed out, in an experimental study on certain species, that a marked condition of acidosis, as measured by the hydrogen ion concentration of the urine, is always associated with the appearance of creatin in the rabbit This may be brought about by feeding acid-forming foods On the other hand, if a base-producing food, such as carrots, is fed to rabbits with creatinuria, this symptom rapidly disappears as the urine becomes alkaline Lack of carbohydrate in the diet has been believed to lead to an output of creatin in the urine Underhill has concluded, however, that it may appear even when adequate carbohydrate is supplied He believes that creatinuria is not necessarily related to carbohydrate deficiency in the body It would appear to be associated with a condition of acidosis which usually accompanies those states of metabolism in which carbohydrate deficiency is especially noticeable If this interrelationship is established, creatin in the urine may prove to be an index of a condition of acidosis in the organism

Wilson and Plass[2] of the Johns Hopkins Hospital have carried the analysis a step farther back in the metabolism by reinvestigating the relationship between creatin and creatinin in the blood plasma and in the urine They have found little or no creatin in adult human plasma This observation offers an explanation for the fact that creatin is seldom found in the urine of normal men, and in small and variable amounts in the urine of normal women On the other hand, infants, who are known to eliminate relatively large quantities of creatin, have in their plasma practically as much creatin as creatinin

It has further been observed that the plasmas of other species, such as the pig and the hen, which commonly excrete creatin in the urine, contain larger quantities of this nitrogenous compound This harmonizes well with the view that a characteristic relationship appears to exist between the concentration of creatin in the plasma and its elimination in the urine Wilson and Plass point out that the older observations led to the anomalous conclusion that creatin is present in considerable quantities in the blood of man, while little if any normally escapes into the urine, but that under certain slightly abnormal conditions, it may be eliminated in considerable quantities Moreover, the variations in the concentration of creatin in the bloods of different animals showed no relationship to the relative amounts of creatin excreted The new hypothesis makes the output of creatin and creatinin dependent, as are certain other urinary constituents, on their presence and concentration in the plasma The concentrations of creatin in the plasma and corpuscles of man appear to be different and must henceforth be studied independently

In this connection it appears worth while, in view of the increasing attention now being devoted to the chemical analysis of human blood, to call attention to the conflicting views regarding its content of creatinin The normal values have usually been put from 1 to 2 mg, while Gettler, of the Department of Pathology at Bellevue Hospital, New York, contends that these figures are much too high A critical study of the current methods of analysis leads him to adopt a range of from 0 1 to 0 5 mg in 100 c c of blood as normal values Such differences reported by prominent investigators bring the quantitative aspects of the blood-creatinin question into prominence anew

VACCINE TREATMENT AGAIN

In these columns we have called attention repeatedly to the *post hoc ergo propter hoc* fallacy in claims advanced in favor of the treatment of various infectious conditions with bacterial vaccines The majority of the acute and subacute conditions are curable spontaneously without any such specific means as vaccines have been thought to be, and especially when the general condition of the patient receives good attention and when, as in the case of strictly local infections, the proper conditions favorable for healing are secured by surgical measures In any event, the more chronic infectious processes subjected to vaccine treatment almost without exception present variations in their course, periods of improvement succeed periods of exacerbation

On account of these facts it obviously is utterly impossible to judge of the effects of any given treatment of such diseases as we now have in mind without the most careful comparative observations in treated and untreated cases of such nature and under such conditions that the results obtained in the two groups are comparable As pointed out by Leake[1] in his article on bacterial vaccine therapy, whenever this kind of study has been made so far, the results appear to be about the same in the two groups, the test groups and the control group This is true not only of whooping cough and typhoid fever, but also of that intractable infection, gonorrheal vulvovaginitis in young girls and we believe, in pyorrhea alveolaris, too As for the strikingly favorable results in individual instances reported by vaccine enthusiasts, and repeated over and over again in advertisements, they are all matched, every one of them, by equally brilliant results in cases not treated with vaccine and of frequent occurrence everywhere In other words, the present situation as to vaccine treatment illustrates again that uncontrolled clinical reports have no value as evidence as to the curative value of a treatment in spontaneously variable and self-curable diseases, and as Leake says, the case in general for bacterial vaccine therapy is not proved

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[1] Underhill, F P Studies in Creatine Metabolism, I, Possible Interrelations Between Acidosis and Creatine Elimination, Jour Biol Chem, 1916, 27, 127

[2] Wilson, D W, and Plass, E D Creatine and Creatinine in Whole Blood and Plasma, Jour Biol Chem., 1917, 29, 413

[1] Leake J P Bacterial Vaccine Therapy, The Journal A M A, this issue, p 631

The history of commercial vaccines is not creditable to many medical and scientific journals At present the *Journal of Bacteriology*, the official organ of the Society of American Bacteriologists managed and edited by a committee of distinguished bacteriologists (distinguished however, not for high standards as to ethical advertising in scientific fields), carries a full page display advertisement which reads

> HAY-FEVER
>
> SUCCESSFULLY TREATED WITH
>
> BACTERIAL VACCINES
>
> Pollen irritation and breathing of the hot dust-laden atmosphere favor the development of pyogenic bacteria in the respiratory tract which then become a factor of the disease
>
> Experience shows that the immunizing influence of an appropriate bacterin will either cure the disease or so modify it that it causes but little distress Use ——— s No 40 Write for literature

Where is the evidence of the cure? Of the modification of the disease? As no conscientious person wishes to be the means of spreading what is false, let us take to heart and profit by what Bacon says "If false facts in nature be once set on foot, what through neglect of examination, the countenance of antiquity, and the use made of them in discourse, they are scarce ever retracted"

Menthol from Japan—Since the beginning of the war the United States has become the largest purchaser of menthol from Japan In 1916 the total export amounted to 515,277 pounds valued at $1,201,698 The duty on menthol in the United States is 50 cents a pound The price has varied from $2 to $2 50 a pound during the past five years Recent improvements in the process of manufacture have kept the price at a reasonable figure even during the war It is said that 85 per cent of the peppermint from which the menthol is made is grown in the Hokkaido district (*Commerce Reports* Aug 7, 1917), where the preliminary steps in its manufacture are carried out by the peppermint farmers themselves with stills of simple design The crude product is sent to Kobe and Yokohama factories where the menthol is produced and the residual oil further purified to the standard requirements for peppermint oil.

Current Comment

MEDICAL STUDENTS AND THE DRAFT

We are publishing, for the third time, facts collected from medical students in regard to their relationship to the draft, and restate how the facts were obtained In order to secure the information, a double postal card was sent to every medical student whose address we had These addresses were available as part of the data obtained each year by the Council on Medical Education We had 8,600 such addresses The postal card called for the name, age, college and class in which the student was enrolled, his red serial number, and the numerical order of call It also called for information as to whether or not the individual was in the first call, whether he considered himself exempt, and if so, for what reason? To those schools whose students' addresses we did not have, post cards were sent in packages with a letter urging the college to place them in the hands of the students to be mailed to us at the earliest opportunity As replies were received, the cards were divided into seven groups, according to whether the students were in the first, second or later call, were below or above the draft age, were exempt on account of being aliens, or had previously enlisted The cards in each group were kept in alphabetical order, so that all duplications were avoided At present replies have been received from 6,777 students Of these, 108 have already enlisted, 42 are aliens, 659 are under and 146 over the draft age, a total of 955, leaving 5,822 (85 9 per cent) otherwise eligible for the draft There are 1,666 (28 4 per cent) in the first call, 1,157 (19 7 per cent) in the second call, and 2,999 (51 9 per cent) in the third and later calls Of the 1,666 who are in the first call, 1,052 stated positively that they were so included, while 614 did not know, but were so included through estimation from the key list giving the numerical order of the call All the numbers coming below 2,250 were estimated as being in the first call, those between 2,250 and 4,500 in the second call and those above 4,500 in the third and later calls These numbers were arbitrarily selected and it now appears that 2,250 was not sufficiently high to cover all in the first call As stated previously, there were 13,764 medical students enrolled in our medical colleges during the session of 1916-17 Of these, 3,379 were recently graduated, leaving 10,385 to be regarded as medical students Of these, 4,107 were freshmen, 3,117 sophomores, 2,866 juniors and 295 seniors who were not graduated On the basis of the replies already received, 8,983 students, or 86 5 per cent of all,

Class	Total Re-plies	Total to be Drafted		First Call		Second Call		Later Calls		Age Exempt		Aliens	Enlisted
		No	%	No	%	No	%	No	%	Under	Over		
Freshmen	2,265	1 785	78.8	467	26.2	325	18.2	993	55 8	387	83	17	43
Sophomores	2 165	1,900	87 8	498	26.2	397	20.9	1 005	52 9	176	49	14	26
Juniors	1 689	1 568	92.8	477	30.2	323	20 6	768	48 9	44	44	9	24
Seniors	242	227	93 7	84	37 0	56	24 7	87	38 3	5	7	2	1
Not stated	416	342	82.2	140	40 9	56	16 4	146	42 7	47	13		14
Totals	6 777	5,822		1 666		1 157		2,999		659	146	42	108
Percentages	100	85.9		28 4		19 7		51.9		9 7	2.2	0 6	1 6

including aliens, have registered and 1,402 have not registered, either because of previous enlistment or because they were under or over the draft age. Continuing our calculation on the basis of the actual returns, we estimate that 2,551 (28.4 per cent.) will be included in the first call, 1,770 (19.7 per cent.) in the second call, and 4,662 (51.9 per cent.) in the third or later calls. Aside from those mentioned in the table exempted because of alien citizenship, no reference is made to exemptions.

MEDICAL STUDENTS AND CONSCRIPTION—OUR FIGURES QUESTIONED

Two weeks ago we published the analysis of the data obtained from medical students regarding their relation to the draft age, total number registered, number to be called on each call, etc. The figures published were based on information received directly from the students themselves. The Provost-Marshal, General Crowder, both in letters and in the public press, has stated that these figures "are erroneous and are on their face impossible to be true." General Crowder is also quoted as saying:

> "Out of 10,000,000 persons of draftable age, the present call extends only to 700,000, or one fourteenth of the total number registered. Therefore, it is only one fourteenth, or about that fraction, of medical students that can be taken on the present draft."

It may be true that one fourteenth of the total number of all persons registered will be drafted and placed in the National Army on this first call. But how many of the total number registered will it be necessary to examine to secure this one fourteenth—the 700,000 for the first call? General Crowder says that 60 per cent. of those called will be exempted. If this is true, then it will require 1,750,000 of those registered to supply the 700,000, that is, it will take 18 per cent. or nearly one fifth of the total number registered to supply the first call, using General Crowder's figures.[1] Let us apply these facts to the medical student problem. Our estimate was that 85.5 per cent. of medical students (8,879) were subject to draft, that is, were within the draft age. Eighteen per cent. of the total number of medical students registered is 1,598; this number would be subject to the first call. General Crowder, however, would have us deduct 60 per cent. of this number for exemption. But the 60 per cent. exemptions is based on the total registration; it applies to and includes all classes of the male population between 21 and 31 years of age: the lame, the halt, the blind, prisoners, insane, those who are engaged in occupations necessary to the conduct of the war—every male person in the United States between 21 and 31 years of age. Is it not fallacious to apply this percentage of exemptions to medical students? It certainly and emphatically is. According to the selective draft law, persons registered may be exempted because they are: (1) supporting dependents; (2) ministers or theological students; (3) holding government positions, employed in munitions work, in agriculture, etc.; (4) physically defective, or (5) of alien birth. It is extremely rare that a medical student is a married man; extremely few are supporting dependents. Obviously those who are, have independent incomes, or they would not be in the medical schools. The second and third causes for exemption are excluded. As to physical defects, there is probably no group of men who, as a class, are physically better qualified than medical students. As to aliens, our investigation shows that the number of aliens is a minor quantity, one half of one per cent. of those replying reported themselves as aliens. We unhesitatingly assert that instead of there being 60 per cent. of exemptions among medical students, there will be less than 10 per cent. And from such evidence as we have before us, we still believe that the figures we have given in the past and that appear in another part of this issue are much more nearly correct than those that are here discussed based almost wholly on percentage calculations.

THE PROVOST-MARSHAL'S CONCEPTION OF MEDICAL EDUCATION

The following is from a memorandum from the Provost-Marshal, General Crowder, to the Secretary of War, under date of June 30:

> "I think that any medical student drafted can continue his studies to the very best advantage in the Medical Corps of the United States Army and gain a practical experience which he could not gain at any other time than war. It would be very well, it seems to me, if all the medical students could be furloughed from the colleges into the Army for the purpose of taking this practical training, rather than furloughing them from the Army back to the medical schools to complete a technical course."

This, it must be remembered, comes from a man in a responsible position, and apparently endorsed by the Secretary of War. Is it possible that these officials imagine that medical science and medical education have made no progress since our Civil War?

THE PROPOSED COMPENSATION AND INSURANCE LAW

A most important piece of legislation, one which is destined to affect the entire social organization of our country, is the family allowance, compensation and insurance bill recently introduced in Congress and abstracted in this issue.[1] It is a war measure which immediately affects the welfare and the morale of our troops at the front. The soldier who knows that in case of death or disability his family will be permanently provided for is a better soldier than one whose morale, if not health, is weakened by anxiety regarding loved ones at home. The commander of the American troops in France—General Pershing—believes that it is not only unnecessary but also undesirable that the American soldier have for spending money each month the sum of $33 or more. The allotment of a portion of his pay to his family and the voluntary disposal of a certain sum per month toward the purchase of insurance will still leave him more money than is received by most of the troops of our allies. The bill is not a bill to make the soldier dependent on the government after the war, but to encourage him to rehabilitate himself, to take up new work to make him better able to take care of himself and of his family. The law does not provide for pensions but for compensation. It compensates the military workman of the government, just as many state governments compel employers to compensate their employees. The justice of the measure especially for the men in the ranks and their dependents, will be fully appreciated by physicians. It will benefit the whole country in the way of maintaining the health and welfare of the mass of the population involved. As the Secretary of War has said: "When we draft the wage-earner, we call not only him but the entire family to the flag; the sacrifice entailed is not divisible."

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[1] We are using the numbers given by General Crowder. As a matter of fact, the official figures quoted from the Official Bulletin are 9,659,382 men registered, not 10,000,000; the first call is for 687,000 men, not 700,000.

[1] See The War Insurance and Compensation Bill, Medical Mobilization and the War, this issue, p. 652.

NASOPHARYNGEAL DISINFECTION BY HYPOCHLORITES

When properly used, hypochlorite solutions may render infected wounds practically sterile so that they may be sutured with success, as illustrated by the results of Carrel's method. Naturally the question arises whether or not such solutions will be of value in disinfection of the nose and throat, especially in the case of diphtheria and meningococcus carriers. The general situation in the case of such carriers is, of course, by no means the same as in an infected wound. Infected wounds may be subjected to practically constant flushing with disinfectant solutions, the surfaces are either fresh or granulating, and the tissues are abundantly vascularized and infiltrated with leukocytes, so that they are in good condition for healing when foreign bodies and micro-organisms are removed. In the throat and nose, disinfectant solutions cannot be used constantly; there are many places which can be reached by disinfectants only with great difficulty and frequently not at all, such as deep crypts in the tonsils and in adenoids, abnormal conditions in the nose, etc., and the surfaces are covered with mucous membrane in which no active inflammatory or antibacterial processes are usually going on. And yet it surely does seem as if it might be possible so to apply disinfectants in the nose and throat that they would destroy rapidly bacteria like the diphtheria bacillus and the meningococcus, at least in persons with practically normal anatomic conditions. Many substances have been used for this purpose, but it has not been established that it is possible by means of disinfectants to hasten the removal of the offending bacteria in carriers. Recently encouraging results have been reported from the use of hypochlorite preparations.[1] Dunham and Dakin state that a marked diminution in the number of colonies obtained from the nasopharynx follows intensive spraying with dichloramin-T in oily solution. Conclusive evidence can be obtained only from the accurate study, properly controlled, of a large number of carriers. For this purpose, chronic diphtheria and meningococcus carriers should be used especially, because in them there is less likelihood of the spontaneous disappearance of the bacteria. Studies of this nature should be pursued with persistence and vigor, because no more important steps can be taken in the prevention of cerebrospinal fever and diphtheria than the discovery of a means whereby carriers can be promptly freed from meningococci and diphtheria bacilli in the nasopharynx.

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[1] Gordon: Brit. Med. Jour., 1916, 2, 8. Gordon and Flack: Ibid., 1916, 2, 673 (nebularized chloramin solutions). Beattie, Lewis and Gee: Ibid., 1917, 1, 256. Dunham and Dakin: Ibid., 1917, 1, 682.

MENINGOCOCCAL SKIN LESIONS

Several observers have noted the presence of meningococci in spots in the skin after death from cerebrospinal fever, and recently Netter and others[1] have demonstrated meningococci in purpuric and petechial eruptions during life, not only in cases with the usual meningeal symptoms and signs, but also in cases of meningococcus infection without meningitis or before meningitis had developed. It will be recalled that the development of petechial eruptions in cerebrospinal fever is an indication of grave prognostic significance, that such eruptions appear to have been more frequently present formerly than recently, and that the disease at one time was called "black death" because of the many deaths in cases with cutaneous eruptions. Netter and his associates find typical meningococci in the contents of little vesicles that may form on the surface of purpuric and petechial spots and also in the fluid that exudes after scarification of such spots. So far their cases have occurred in infants, and, as indicated, grave meningococcus infection has been diagnosed by this demonstration of meningococci in patients in whom typical meningitis had not developed, thus making it imperative to inject antimeningitis serum at a much earlier period than otherwise would have been the case, and even when it otherwise would not have been used at all. This finding of meningococci in skin lesions is quite analogous to the finding of typhoid bacilli in the rose spots of typhoid fever; in both cases it signifies that the organisms have been present in the blood. Besides being of great value in the early diagnosis and prompt serotherapy of meningococcus infection, the demonstration of the cocci in skin lesions may be of great value also from the point of view of prevention, because thereby cases of cerebrospinal fever may be detected that otherwise might escape observation, isolation, quarantine of contacts, etc. In all cases of obscure fever with peculiar skin eruption, the fluid in the tissues of the affected skin should be examined bacteriologically for micro-organisms, particularly meningococci; let it be remembered, however, that in this instance as well as in so many others, the negative result cannot be assigned any such value as may be assigned to the positive result.

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[1] Netter and others: Brit. Jour. Child. Dis., 1917, 14, pp. 101 and 104.

The Autumn Purge.—Purges are good in autumn from the eighth kalends of October to the eighth kalends of December, for since in summer and winter the body produces phlegm and black bile or melancholy, as we call it, in autumn it should be purged of these.—Ancient Medicine.

Medical Mobilization and the War

The Surgeon-General and Drafted Students

We are asked to announce that the Surgeon-General's Office desires the names, addresses and ages of men in each class of every reputable medical school who have been drawn and accepted for military service under the provisions of the selective draft, these names to be vouched for by the deans of the respective medical colleges

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Modification of Physical Requirements for the National Army

The Surgeon-General has amended the regulations governing physical examinations for the National Army as to authorize acceptance of men 61 inches in height, weighing not less than 110 pounds, 62 inches, same weight, 63 inches, not less than 112 pounds He also authorizes acceptance of men 64 inches in height and over of less than standard weight, provided the underweight is due to temporary causes and can be reasonably explained

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Standard of Height and Weight for Medical Reserve Officers

To comply with the qualifications for the new National Army physicians will be accepted for the Medical Reserve Corps who are not under 61 inches in height or 118 pounds minimum weight, a variation of 8 pounds being allowed—110 pounds minimum—in case the applicant is otherwise physically fit These physical requirements for the Medical Reserve Corps which were height, 64 inches, weight, 120 pounds minimum Physicians who have been rejected on previous application for membership in the Medical Reserve Corps because of disability in minimum height and weight may apply again for commission to the board before which they first appeared

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Reserve Officers on Active Duty

There are at present approximately 8,000 medical reserve officers on active duty This number includes those in training camps for Medical Reserve Officers, those mobilizing the National Guard, those in foreign service, and also a considerable number who have been sent to the Philippine Islands, to Hawaii, and to other American dependencies to relieve the regular medical corps men from those stations On August 25, between 1,000 and 1,100 medical reserve officers will go to the various cantonments for the National Army to prepare for the advent of the first 200,000 men of the National Army who have been ordered to report at the cantonments on September 5

The Conscription of Interns

Last week we referred to the fact that the hospitals of the country which employ interns were to be deprived of a certain proportion of interns by the draft We have obtained figures from five general hospitals in Chicago Of 117 interns in these five hospitals, forty-three have been accepted by draft boards and ordered to be prepared to report for military service In addition, twenty-eight have been drafted from the eligible list of sixty from which the Cook County Hospital was prepared to draw to fill its shortage Thus, of a total of 177 interns, seventy-one, or 40 per cent, have been drafted

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Physicians Recommended for Commission in the Medical Reserve Corps

During the week ending August 18, 834 physicians were recommended for commission in the Medical Reserve Corps, the proportion being six majors, seventy-one captains and 757 lieutenants

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Physicians in the Training Camps

On August 18, there were in the various training camps for Medical Reserve Officers approximately the following number of physicians Fort Oglethorpe, 1,100, Fort Benjamin Harrison, 1,200, Fort Riley, 1,000, Allentown, Pa, 125, Fort Des Moines, Iowa, 72 (colored), total, 3,497

Advice on Food

The Surgeon-General of the Army authorizes the following Dr Alonzo E Taylor, member of the advisory board of food division of the Surgeon-General's Office, will visit the several medical officers' training camps and deliver a series of lectures on food values, food needs, and preparation and conservation of food

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The Disposal of Drafted Medical Students, Pharmacists and Physicians

There is considerable anxiety on the part of many of our readers concerning the drafting of persons in whom they are interested Two physicians write concerning pharmacists, several have written as to what will be done with medical students, provided they are not to complete their medical education, and a large number have written as to disposal of physicians who have been conscripted The reply to all these inquiries is that each man will be assigned to that particular work for which he is best fitted So far as pharmacy is concerned, there is quite a large demand for pharmacists in connection with the Medical Department of the Army So far as medical students are concerned, it is already announced unofficially that these will be assigned to the Medical Department and become a part of the enlisted Hospital Corps Physicians, of course, will be assigned to the same department

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Hospital Interns and Medical Students and the Selective Service Act

Thirty-two of the leading hospitals of New York were represented at a meeting of the mayor's committee on Hospital and Medical Facilities in New York, August 15 A resolution was adopted calling the attention of the Secretary of War to the serious consequences to the civilian population of the country and to the maintenance and operation of the hospitals if medical students and hospital interns are not for the present withdrawn from the operation of the selective service act The resolution provides that the views of the committee be laid before the proper officials of the government and the district boards of the state of New York, and requests that proper steps be taken for the temporary exemption of medical students and interns so that there may be a constant supply of medical men to the Army throughout the war, and to prevent the embarrassment of the hospitals and the consequent serious results to the people of the United States At present, it is understood, no provision has been made by the government for such exemption

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The War Insurance and Compensation Bill

The war insurance and compensation bill pending in Congress is intended to apply to the tremendous hazards of war conditions for the benefit of our soldiers, sailors and their dependents, the protective principle of the industrial compensation laws and the additional privilege of individual insurance at a nominal cost, compensation rather than pensions in amounts fixed definitely in advance in the place of the chance of mere gratuities after the war, death insurance at such low rates that even the private may insure for the maximum sum allowed The bill involves the economic welfare, and therefore the body welfare, of a large mass of our people Physicians, especially, as well as all other citizens, will be vitally interested in it, and for their information the main features of the bill are given here

The bill, with the approval of the President and strongly recommended by the Secretary of the Treasury, was introduced into both houses of Congress, August 10, as an amendment to the act establishing the Bureau of War Risk Insurance in the Treasury Department The bill applies to all enlisted men of the Army and Navy as well as to the women of the nursing service of both branches, and sets forth in exact terms what will be done for every person in any relation to the soldier, sailor or nurse who is dependent on him or her for support, and also for the soldier himself in case of injury or disease in the way of free hospital treatment, appliances for mutilated men and provisions (which may be compulsory) for vocational training and reeducation It provides for insurance against death at extremely low rates in any sum up to $10,000 As expressed by the Secretary of the Treasury, the main purpose of the bill "is to grant a reasonable government indemnity against the losses and risks incurred in the discharge of a patriotic duty and in the performance of extraordinarily hazardous service to which the government has called and forced the citizens It provides not only for the man but for his family "

The provision for dependents, however, is not all to come from government funds, it is to a certain extent mutual By a compulsory feature of the bill, unless waived or exempted, an allotment from the soldier s pay will be made to a wife and children up to the age of 18 of a minimum of $15 per month or not more than half the pay and to other dependents such sums as the soldier may voluntarily agree to pay In the case of the wife and children the allotment of government funds shall be from $5 to $50 per month according to the size of the family and in the case of other dependents the amount of their actual needs and the amount usually contributed by the soldier to their support, but no allowance will be made in the case of the latter by the government unless a voluntary allowance has been made by the soldier A schedule of family allowances under the bill is as follows In the case of a man to his wife (including a former wife divorced) and to his child or children if there be a wife but no children, $15, if there be a wife with one child, $25, a wife and two children with $5 additional per month for each child $32 50 if there be no wife but one child $5, if there be no wife, but two children $12 50 if there be no wife, but three children $20, if there be no wife but four children, with $5 per month additional for each additional child $30 The bill explicitly defines the status of wife and children parents and others who may be entitled to compensation and is liberal in its interpretation in this respect for instance, including illegitimate children acknowledged by the father, or whom he has been judicially ordered to support

In case death results from injury the percentages of the Army pay allowed to dependents shall be as follows For a widow alone 25 per cent but not less than $30 for a widow and one child 35 per cent but not less than $40, for a widow and two children 40 per cent. but not less than $50, with 5 per cent additional but not less than $5 for each additional child up to two if there be no widow, then for one child 20 per cent., but not less than $15 for two children, 30 per cent but not less than $25 for three children 40 per cent. but not less than $35 with 5 per cent additional, but not less than $10 for each additional child up to two, for a widowed mother 20 per cent but not less than $25, the maximum monthly compensation for death shall be $200 Compensation for death is to continue until the children are 18 years of age and until two years after the remarriage of the widow and the amount to be granted is to be determined by the status of the family at the time of each monthly payment.

Total disability from injury "so as to make it impracticable for the injured person to pursue any gainful occupation" is provided for in the following percentages of the pay If the person has neither wife nor child living 40 per cent but not less than $40, if he has a wife, but no child living, 50 per cent., but not less than $55, if he has a wife and one child living 55 per cent., but not less than $65, if he has a wife and two or more children living 60 per cent., but not less than $75, if he has no wife but one child living 50 per cent., but not less than $50 with 5 per cent additional but not less than $10 for each additional child up to two, if he has a widowed mother substantially dependent on him for support, then, in addition to the above 10 per cent., but not less than $10 $20 additional for a helpless person in constant need of nurse or attendant, the maximum monthly compensation to be $200

The government through this bill, does not intend to prevent the soldier from applying his income to the establishment of a business or to the purchase of a farm The soldier is allowed to commute his compensation, but the government will protect him from his own folly because it permits him to commute only one half of his personal compensation and does not permit him to commute that portion which is for the use of his family nor the remaining half of his personal compensation He will thus be independent of communal assistance even though he loses the sum which he has invested

On certification within one year after resignation or discharge compensation may be claimed by the soldier or on his account for disability or death resulting from injury suffered or disease contracted while in the service A man must avail himself of opportunities provided by the government under penalty of loss of compensation during any period of unreasonable refusal, but he retains the right to disability compensation regardless of economic recuperation

An important and remarkable feature of this bill is the provision for government insurance covering total disability and death, to officers, men and Army nurses while in active service as part of the military or naval forces, enabling them to purchase insurance at a premium for the war period of from $7 to $8 per $1,000 for any sum up to $10,000 This feature was framed after thorough study by Judge Mack, the author of the bill, in cooperation with the actuary of the War Department and a number of other government department heads and other experts, and the low cost of the insurance to the men is based on the principle that the excess cost due to increased mortality and disability risk should under the circumstances be borne by the government, as should also the expense of administering the insurance bureau, contributory also to the possibility of low rates is *the avoidance of the large expense of private companies* in the way of agents' commissions, advertising medical examination profits, etc. The premiums are to be payable in instalments, the insurance is to be nonassignable and free from the claims of creditors either of the insured or the beneficiary It is limited to the wife and children and to other relatives who are specified, and must be applied for within 120 days after the act is in force or after enlistment and entrance into the service It is even provided that those who are disabled or die within the prescribed period of 120 days, before they have had opportunity to apply for the insurance, shall be considered to have applied for and will be allowed insurance in the sum of $5,000 After the war the insurance it is said may be converted into other forms with earlier maturity, but with the premium based on the same mortality tables of peace times The liberal provisions of the bill will be apparent when they are contrasted with those of the present pension laws, which allow from $12 to $30 for a man $8 for a widow and $2 for a child

The estimated cost of this insurance for the first year has been placed at about $176 000 000, and for the second year, about $380 000 000 Objection has been raised to the bill on account of this apparently vast expense The Secretary of the Treasury however calls attention to the fact that this will amount to only about 6 per cent of the sums proposed to be expended for the other purposes of the war, and considering that it is for the benefit of the widows and orphans, the dependent and the injured, who make the real and the greatest sacrifices for the safety and honor of the country, objection on account of expense is not worthy of consideration Nor indeed would the country escape possibly greater expenditures ultimately through the pension system, which this bill on its passage would replace

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A Petition for the Drafting of Physicians

The New York State Committee for National Defense some time ago passed resolutions to the effect that measures be instituted to secure the necessary federal legislation authorizing a selective draft of physicians based on a classification of physicians similar to that which was recently made of the physicians of New York state In order to bring the matter before the attention of those interested, a committee was appointed to draw up a petition to the Congress of the United States to be circulated for signatures and then presented to Congress Letters have been drafted for the medical boards of various hospitals, the county medical societies, the deans of various medical colleges, and the Council of National Defense, presenting the petition and urging that it be signed and presented to Congress The petition follows

A PETITION TO THE CONGRESS OF THE UNITED STATES FROM THE MEDICAL PROFESSION OF THE STATE OF NEW YORK

WHEREAS A critical analysis based upon a classification of physicians by the recent New York State Special Medical Census when applied to the personnel resident in this State of the Medical Officers Reserve Corps of the Army has clearly demonstrated that the volunteer system of recruiting this personnel now and hitherto in effect has failed to secure an adequate number of physicians available and desirable for active *army medical service* and

WHEREAS Such analysis has likewise clearly demonstrated that the volunteer system has failed to exclude from this personnel physicians unfit for active military duty by reason of age, physical disability family obligations or many dependents and

WHEREAS The volunteer system has also failed to exclude from this personnel physicians whose services at home are essential to the public welfare in health departments hospitals medical colleges and isolated communities and

WHEREAS, It has further failed to adjust equitably in age or geographic or population distribution the burden of military service upon the medical profession of the United States and

WHEREAS It has by these failures caused injury to the individual, to the community to the medical profession and to the public and

WHEREAS The volunteer system puts an undesirable and embarrassing burden of decision upon those physicians whose services are most needed at home and

Whereas, There exists no provision in the present draft law for drafting physicians as medical officers, but only as private soldiers, and

Whereas, The existing general draft law affects only those physicians who are of an age of maximum efficiency as soldiers and fails to affect many of those who are of an age most suitable for medical officers, and

Whereas, The justice, wisdom and effectiveness of the selective draft principle have been recognized by Congress in raising a strong army from our civilian population, and

Whereas, We are firmly convinced that a selective draft of physicians for military purposes, based upon a classification similar to that of the New York State Medical Census and designed specifically to exempt those unfit by reason of age, physical disability or many dependents, as well as those necessary for the maintenance of public health, hospital and community service and medical education, will be alike just to the individual, to the community and to the Nation, and that it will secure to the medical service of the National defense those best fitted for its uses while it retains at home those most needed in the community, and

Whereas, We, the undersigned physicians, graduates of standard medical colleges and duly licensed to practice medicine in the State of New York, mindful of our duty to our communities and State as well as to the Nation, are in favor of a selective draft of physicians between *the ages of 21 and 45 years, for medical officers, in numbers sufficient* for the Nation's military needs, based upon a classification by census, which shall exempt those unfit for military purposes and those necessary for the community at home, and

Whereas, We justly claim that such a selective draft of physicians when and if instituted shall and of right ought to exempt graduate physicians, students of medicine and pre medical students in the General Draft Law age group from further liability to the provisions of the existing General Draft Law so long as they retain medical status, now therefore

We, the undersigned physicians as aforesaid, do hereby petition the Congress of the United States for legislation enabling the President to direct the institution of such a classification and to proclaim and order such a selective draft

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Program of Social Hygiene for Soldiers, to Safeguard Their Morals and Health, Outlined by Surgeon-General's Office

The Surgeon-General's Office has authorized the following statement on the social hygiene program of the War Department in relation to other agencies

In its popular interpretation, social hygiene has been used as a phrase to refer inclusively to all efforts for protection of the population from prostitution and venereal disease Prostitution in its various forms affords the chief opportunity for disseminating the venereal diseases and promoting sexual promiscuity Neither the military nor the civil authorities have been able effectively to combat this medical social evil alone The assembling of troops in the vicinity of civil communities has always introduced a difficult social problem on the one hand and on the other has attracted the promoters of organized vice, who have established the commercialized activities known to increase the supply and demand for prostitution The civil authorities within whose jurisdiction these practices were carried on were inexperienced in dealing with the situation, and the military authorities had no legal power under which to take action

During the present war there is for the first time the opportunity to secure full cooperation between military and civil forces in applying the medical, social, moral, and economic knowledge which has been demonstrated to have a bearing on the repression of prostitution and the reduction of the prevalence of venereal diseases Public opinion will now support a sound program, and sufficient authority has been secured through legislative and administrative action to promise important results

MEASURES PROPOSED

The paramount national issue is the winning of the war, and every resource, both military and civil, must be applied toward this end The social hygiene program has, therefore, been centered administratively on the protection of the military, naval, and other governmental forces The success attained, however, is equally to the advantage of the civil population So far as these administrative measures relate to the United States Army they may be grouped under five headings

1 *Army Medical Department*—Military measures for combating venereal diseases

2 *United States Public Health Service*—Epidemiological measures for the control of venereal diseases in the civil sanitary districts

3 *War Department Commission on Training Camp Activities*—(*a*) Law enforcement measures in the department zones (*b*) Recreation measures in the department zones

4 *Civil Authorities*—Law enforcement, recreation, facilities for treatment of venereal diseases and protection and control of women and girls

5 *Nonofficial Agencies*—Social hygiene activities of volunteer organizations recognized for special services

Each of these groups includes a variety of activities carried out by widely different agencies that have been available at the moment of necessity, and having proved useful have continued to function

THE ARMY MEDICAL DEPARTMENT

The Medical Department of the Army is limited in its strictly official capacity to measures for the prevention and treatment of veneral diseases inside the military encampments Unofficially the Surgeon General and his staff are in full accord and cooperation with the agencies to which reference has been made A section has been organized to devote its attention to this problem, with an officer in charge of the laboratory investigations, one in charge of medical work, and one in charge of educational and environmental measures and sociological studies These officers will have the cooperation of the officer who is in charge of sanitary inspection, and the officer who directs the division of training camps While the creation of a special section is new it should be stated that the work has been carried on by the Army for many years. The activities of the section may be summarized under the following headings

1 Educational work adapted so far as practicable to the individual needs and responsibilities of the men and officers and conducted through personal interviews, group talks, illustrated lectures, exhibits, pamphlets, and library reference books.

2 Prophylactic stations for minimizing the number of infections developing after exposure and for personal advice and warning directed toward lessening the number of future exposures

3 Diagnosis and treatment facilities for cases of syphilis and gonococcus infections which develop in spite of efforts to prevent them

4 Enforcement of penalties against those who ignore advice and instruction to avoid sexual intercourse and venereal disease

5 Epidemiological studies of the venereal diseases to discover any new measures which may be applied

PUBLIC HEALTH SERVICE

The United States Public Health Service has been charged with the responsibility for health conditions in civil sanitary districts surrounding military establishments The work will be done in cooperation with the State and local authorities and with the American Red Cross through an advisory board The venereal diseases as dangerous communicable diseases, are included in the program The following are the principal lines of activity to be undertaken in relation to these diseases

1 Promotion of public opinion in support of the social hygiene program agreed upon

2 Survey and standardization of dispensary and hospital facilities for venereal diseases

3 Cooperation with private practitioners in minimizing the dissemination of infections.

4 Extension of laboratory, clinical, and advisory service for venereal diseases in communities under civil auspices

Efforts along each of these lines will simplify and render more effective the Army measures

COMMISSION ON TRAINING CAMP ACTIVITIES

In order to deal effectively with social hygiene in all its phases the Secretary of War has created the commission on training camp activities to carry out the law enforcement regulations promulgated by him under the authority of Congress and the President This commission has also been charged with important activities in furnishing recreation for the troops Under these two divisions the commission's work as it indirectly bears on the control of venereal diseases may be summarized as follows

A Law enforcement measures
  1 Elimination of commercialized prostitution in the cantonment zones
  2 Repression of clandestine prostitution
  3 Control of alcohol and other aids to prostitution
  4 Combating of gambling, use of drugs and other harmful practices
B Recreation measures.
  5 Social and educational activities of recreation huts in the cantonments and of recognized agencies in the cantonment zones
  6 Theatrical and other entertainment programs
  7 Athletic contests, tournaments, and games
  8 Reception tents for visitors
  9 Libraries of popular books and other facilities provided under the direction of the commission

CIVIL AUTHORITIES

It is recognized that neither the measures within the military establishments nor the supplementary measures in specified zones can achieve the largest success without full cooperation of civil authorities in enforcing equivalent measures in all communities accessible to the personnel of the military forces The carrying out of the following program, which has been inaugurated in many cities and towns is of great importance to the Army and to national efficiency

1 Enforcement of laws and ordinances against prostitution and alcohol

2 Establishment of proper facilities for advice and treatment of persons infected with venereal diseases.

3 Provision of attractive recreation and entertainment for the leisure hours of the population

4 Moral protection and education of women and girls.

NONOFFICIAL AGENCIES

The complicated interlocking of military and civil interests in the protection of soldiers and civilians from vice and disease affords an opportunity for many useful activities of volunteer agencies This is particularly true in the field of social hygiene In the interest of efficiency and avoidance of confusion and duplication of effort a small number of such agencies have been recognized as clearing houses for military civil work of a very large number of organizations in their respective field

American Women's Hospitals

'The War Service Committee of the Medical Women's National Association according to a note from Dr Ethel D Brown secretary has organized the American Womens Hospitals for work at home and abroad The Surgeon-General of the Army and the General-Director of the Department of Military Relief of the American Red Cross have approved the provision made for service to the Army and to the civil population The work will be officially part of the medical and surgical service of the American Red Cross The scope of the plan is a broad one It includes units for maternity service and village practice in the devastated parts of the Allies countries and hospitals run by women for service there as well as for the United States Army in Europe In this country acute and convalescent cases will be treated in hospitals equipped for the purpose soldiers' dependents will be cared for interned alien enemies will be given medical aid and substitutes will be provided to look after the hospital service and the private practice of physicians who have gone to the front The first units hope to go to France and to Serbia in the early fall Headquarters have been established at 637 Madison Avenue New York. Dr Rosalie Slaughter Morton is chairman of the War Service Committee'

Orders to Officers of the Medical Reserve Corps

ALABAMA

To Baltimore Phipps Clinic for a six weeks course of training Major Eugene D Bondurant Mobile and Lieut Wilbur L. Heard Mt Vernon

To Brownsville Texas for duty with Base Hospital No 3 Lieut Duncan P Dixon Talladego

To Fort Des Moines for duty Lieut Thomas L. Zuber, Carrollton

To Fort Oglethorpe for instruction Lieuts Albert S Zimmerman Larkinsville Cecil H Ross Mobile Robert Goldthwaite Montgomery Jesse McC Reed Ray Minette and Charles D Mason Scottsboro

ARKANSAS

To Fort Riley for instruction Lieut Kenneth B Huffman, Bentonville

CALIFORNIA

To Army Service School Washington, for duty, Lieut Jean R Oliver San Francisco

To Fort McDowell Calif for duty Lieut. Mark A Williamson Lone Pine.

To Presidio of San Francisco Letterman Hospital for duty Lieut Kenneth J Staniford Fresno

To Report in Person to Commanding General Western Department for duty Major Herbert C Moffitt Capts Gustav J Bergener William R P Clark San Francisco Lieuts Michel H Etcheverry Herman Verplank Hofman and George R Hubbell San Francisco

To Sparta Wis for duty with 17th Field Art. Lieut William A Sampson San Francisco

COLORADO

To Fort Douglas Utah for making examinations in his specialty Lieut Phillip Work Pueblo

To Fort Snelling Minn for duty with 41st Infantry as surgeon Lieut William J McDonald Fowler

CONNECTICUT

To Rantoul Ill for duty as post surgeon Capt. Richard Blackmore Farmington.

DISTRICT OF COLUMBIA

To Army Medical School Washington for the purpose of taking sick calls at the Coast Artillery Camp East Potomac Park, Capt. James W Hart Washington.

To Fort Des Moines for duty Lieut Silas S Thompson Washington

To Walter Reed General Hospital Takoma Park Lieuts Daniel L. Borden and Adam Kemble Washington.

Honorably discharged Lieut Harry Cockerville Blair Washington

FLORIDA

To Fort Des Moines for duty Lieut. James M Ponder Ocala

To Fort Oglethorpe for instruction Major Raymond C. Turck, Jacksonville and Lieut. Stanley Erwin Jacksonville.

To Philadelphia for course of instruction in military roentgenology, Lieut Harry B McEuen, Quincy

GEORGIA

To Allentown Pa for duty, Lieuts James E. Pitman, Decatur, and Heber J Morton Waynesboro

To Fort Oglethorpe for instruction, Lieuts James A McAllister, Atlanta Thomas E Oden, Blackshear and Richard Binion, Sparta

IDAHO

To report by telegraph to commanding general Western Department for duty, Capt Edward E Maxey, Boise

ILLINOIS

To Chicago enlisting personnel of American Red Cross Ambulance Co No 3 Capt Elbert Clark, Danville.

To Fort Benjamin Harrison for instruction, Capt Charles A Stevens Lieuts Thomas P Foley Robert H Lowry, Jr, Chicago, and Ralph R Trueblood Lawrenceville

To Fort Leavenworth for duty as surgeon with 7th Engineers Lieut Lawrence H Roblee Chicago

To Fort Riley for instruction, Lieut Robert G Bond Harrisburg

To Fort Sheridan for duty, Capt Robert C Fullenweider, La Salle.

To Sparta Wis for duty with 17th Field Art Capt Walter F Von Zelinski Chicago with 16th Field Art as assistant to the surgeon, Lieut Frank C Murrah Herrin

To report to Surgeon General of Army for duty in his office, Major William H G Logan Chicago

INDIANA

To Fort Douglas Utah Lieut Albert G Grubb Mongo

To Fort Sheridan Ill for duty Capt. William H Lane Angola

Resignation of Lieut. Charles C Moore, Owensburg is accepted

IOWA

To Army Service School Washington for duty Lieut. Daniel J Clomset Des Moines

To Fort Riley for instruction Lieut Thomas V Golden Afton

To Sparta Wis for duty with 16th Field Art as assistant to the surgeon Lieut Edward S Parker Idagrove

KANSAS

To Allentown Pa for duty, Capt Jirah M Downs Ellsworth

To Fort Riley for instruction Lieuts Harrison W Wright, Enterprise Andrew Engberg, McPherson

To Fredonia Kan enlisting personnel of Red Cross Ambulance Co No 16 Lieut Walter P Guy Winfield

To Gettysburg Pa for duty with 1st Hospital and Ambulance Co Lieut Robert I Hoffman Wichita.

Resignation of Lieut. Edwin R Tenney, Kansas City is accepted

KENTUCKY

To Fort Oglethorpe for instruction Lieut Louis W Frank Louisville

To Gettysburg Pa for duty with 1st Hospital and Ambulance Co Lieut William S Ehrich Louisville

To Sparta Wis for duty with 17th Field Art. Lieut. Carroll P Price Harrodsburg

LOUISIANA

To Fort Des Moines for duty, Lieut. Oliver W Landry New Orleans La

To Fort Riley Kans for making examinations in his specialty Lieut. Ralph C P Truitt Jackson

To Fort D A Russell Wyo for making examinations in his specialty Lieut. Louis V J Lopez New Orleans

MARYLAND

To Camp Kelly South San Antonio for duty with 31st Aero Squadron Lieut Fred P Weltner, Baltimore

To Fort Benjamin Harrison for instruction Capt Herbert B Montgomery Lanham and Lieut Herbert W Rogers Baltimore

To Fort Oglethorpe for instruction Capt George E Lewis Rockville and Lieut Lewis H Howard Baltimore

MASSACHUSETTS

To Fort Benjamin Harrison for duty with the 48th Infantry as surgeon, Capt Miles D Chisholm, Westfield

To Fort Sill Okla for making examinations in his specialty Lieut. John J Stack Boston

To Gettysburg Pa for duty with 1st Hospital and Ambulance Co Lieut Albert Pfeiffer Lexington

To Quonset Point R I as assistant camp surgeon Lieut Frank Piper Boston

MICHIGAN

To Detroit Mich enlisting personnel of Red Cross Ambulance Co No 8 Lieut Clarence L. Candler, Detroit.

To Fort Riley for instruction Lieut Walter N Sallisbury Ann Arbor

To Grand Rapids Mich enlisting personnel of American Red Cross Ambulance Co No 15 Capt. Thomas D Gordon Grand Rapids

MINNESOTA

To Fort Riley for instruction Lieut. James Farrage, Breckenridge

To Sparta Wis for duty with 16th Field Art as assistant to the surgeon Lieut. Charles F McClusker Minneapolis

MISSISSIPPI

To Fort Oglethorpe for instruction Lieut Canning Tom Bell, De Kalb

To report by telegraph to commanding general Southern Department for duty Lieut. Clyde M Speck Blue Springs

MISSOURI

To Fort Oglethorpe for instruction Capt. Douglas Haggard, Nevada

To Fort Riley for instruction Lieut. Otto N Schudde Sullivan

So much of Par 32 S O 180 Aug 4 1917 War D as relates to Capt Douglas Haggard, Nevada is revoked.

MONTANA

To Fort Riley, for instruction, Lieut Serge Androp, Richey

NEBRASKA

To Fort Riley, for instruction, Lieut. Abel B George, Beatrice.

To Sparta, Wis, for duty with 17th Field Art, Lieut Frederick A Van Buren

Honorably discharged, Capt. Carl F Roh, Seward

NEVADA

To Fort Leavenworth, for duty with 7th Engineers, Lieut. Delos A Turner, Goldfield

NEW JERSEY

To Fort Des Moines, for duty, Lieut. James R Stroud, Jersey City

To Fort Ontario, N Y, for duty, Lieut. Widmer E Doremus, Arlington

Relieved from further active duty, Lieut. Edward F Fitzpatrick, Newark

NEW YORK

To Allentown, Pa, for duty, Lieut. Vernon C Heddens, Bronxville

To Army Service School, Washington, for duty, Lieuts. Russell LaFayette Cecil, Henry E Meleney, and Malcolm McBurney, New York, N Y

To Fort Benjamin Harrison, for instruction, Capts Joseph B Cooke, Cooperstown, for duty with the 45th Infantry as surgeon, Junius H McHenry, New York, N Y, for duty, Lieut. Benjamin E Helprin, Brooklyn

To Fort Delaware, Del, for duty, Lieut. Rowland P Stanley, New York, N Y

To Fort Leavenworth, for duty, Lieut. David M Kaplan, New York, N Y

To Fort Snelling, for duty with 41st Infantry, Lieut. Joseph H. Beattie, Dobbs Ferry

To General Hospital No 1, New York, N Y, for duty, Lieut Edward G Cary, New York, N Y

To Gettysburg, Pa, for duty with 1st Hospital and Ambulance Co, Lieuts Louis R Steibel, and John W Warner, New York, N Y

To Rantoul, Ill, Lieut. Conrad Berens, Jr, New York, N Y

To report by telegraph to commanding general, Eastern Department, for assignment to duty, Lieut John B Byrne, Jr, Brooklyn

To Syracuse, N Y, Lieut Brewster C Doust, Syracuse

To Washington Barracks, D C, for making examinations in his specialty, Lieut Edward L Hanes, Rochester

So much of Par 109, S O 181, Aug 6, 1917, War D, as relates to Lieut. Edward G Cary, New York, N Y, is revoked

So much of Par 159, S O 165, July 18, 1917, War D, relating to Capt. Joseph E Donnelly, New York, N Y, is revoked

Honorably discharged, Lieut L Grant Baldwin, Brooklyn

NORTH CAROLINA

To Fort Oglethorpe for instruction, Lieut Nathan H Andrews, Rowland

To Hot Springs, Ark, for duty, Lieut Thomas B Henderson, Henderson

To report by telegraph to commanding general Southern Department, for duty, Lieut Edward M McCoy, Huntersville

To Newport News, Va, for duty, Capt James E Stokes, Salisbury

Honorably discharged, Capt Montgomery H Biggs, Rutherfordton

NORTH DAKOTA

To Sparta, Wis, for duty with 16th Field Art as surgeon, Lieut Philip G Reedy, Regan

OHIO

To Columbus Barracks, Ohio, for duty, Lieut. Harold V Postle, Columbus

OKLAHOMA

To Fort Riley for instruction, Lieut. Clarence R McDonald, Broken Bow

To report by telegraph to commanding general, Southern Department, for duty, Lieuts Jackson Brashear, Lawton, and Howard A Wagner, Shawnee

OREGON

To Fort Leavenworth, for duty with 7th Engineers, Lieut Philip J Keizer, North Bend

To Presidio of San Francisco Calif, Letterman Hospital, for duty in the department laboratory, Capt David N Roberg, Portland

To report by telegraph to commanding general, Western Department for duty, Capts Herbert M Greene, John J Sellwood, Portland, and Harry E Clay, Salem

Resignation of Lieut. Marion J Jones, Portland, is accepted.

PENNSYLVANIA

To Allentown, Pa, for duty, Lieut Dwight E Long, Freeberg

To Army Service School, Washington, for duty, Lieut Russell Richardson, Newton

To Baltimore, Phipps Clinic, for a six weeks' course of training, Lieut. Victor J P Jourdan, Philadelphia

To Fort Oglethorpe for instruction, Capts William D Hunter, Monessen, David S Bergey, Philadelphia, Lieuts Edward L Artman, Jr, and Benjamin F Buzby, Philadelphia

To Fort Snelling, Minn, for duty with 40th Infantry as surgeon, Capt George C Kieffer, with 41st Infantry Lieut. Cheney M Stimson, Philadelphia

To Gettysburg, Pa., for duty with 1st Hospital and Ambulance Co, Lieuts. John D Elliott, Philadelphia, Samuel Hamilton, Jr, Pittsburgh, Ira A Rowlson, Plattsburg, Benjamin J Longwell, Seminole, with reorganization camp, William C Stiff, Plymouth

To Lock Haven, Pa, enlisting personnel of Red Cross Ambulance Co, No 41, Lieut Lee McC Goodman, Jersey Shore.

So much of Par 46, S O 174, War D, July 28, 1917, as relates to Lieut John D Jungmann, Philadelphia, is revoked

Honorably discharged, Lieut Robert A Schless, Philadelphia.

PHILIPPINE ISLANDS

To Regan Barracks, Albany, for duty, Lieut Thomas C. Walker, Manila

SOUTH CAROLINA

To Fort Oglethorpe for instruction, Lieut Jeff N Webb, Townville

To Greenville, S C, Lieuts Charles W Gentry, James L Orr, Greensville.

SOUTH DAKOTA

To Fort Oglethorpe for instruction, Lieut. Archie McCallister, Crow Creek.

TENNESSEE

To Allentown, Pa., for instruction, Lieut H R Townsend, Nashville

To Fort Des Moines, Iowa, for duty, Lieut Lucius H Gilmore, Columbia

TEXAS

To Camp Kelly, South Antonio, for duty with 30th Aero Squadron, Lieut Joseph H Graves, Waco

To Fort Clark, for duty and assignment to Ambulance Co No 29, to be organized, Lieut James G Ellis, Dennison

To Fort Sam Houston for duty, Capts Edgar W Loomis, Dallas, and William H Hargis, San Antonio

To report to commanding general, Southern Department, for duty, Lieut Wesley J C Wiemers, Galveston

To report by telegraph to commanding general Southern Department, for duty, Lieuts Thomas N Roach, Medicine Mound, and Paul R E Sheppard, Terrell

VIRGINIA

To Fort Benjamin Harrison for duty, Capt Wyndham B Blanton, Richmond

To Fort Oglethorpe for instruction, Lieut Claude N Rucker, Clifton Forge.

To Newport News, Va., for duty, Capt. George A Renn, Norfolk

WASHINGTON

To report by telegraph to commanding general, Western Department for duty, Capt Herbert C Lieser, Vancouver

WEST VIRGINIA

To Fort Des Moines, Iowa, for duty, Lieut. James M Whittico, Williamson

WISCONSIN

To Allentown, Pa, for duty, Lieut Charles A Squires, Sheboygan

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Orders to Officers of the Medical Corps

Major Joseph F Siler, M C, Detachment Laboratory, Fort Sam Houston, to New York City for duty as C O, Base Hospital No 8, New York Post Graduate Hospital, New York City

Major Llewellyn P Williamson, M C, to Fort Sill, Okla, and report August 18 to inaugurate a system of instruction in gas defense

Capts William H Smith and Charles C Demmer, M C, will report at Camp Travis, Fort Sam Houston, for duty as C O of base hospitals to be established at that camp

Capt William L Sheep, M C, to Camp Greene, Charlotte, N C, for duty

So much of Par 80, S O 175, July 30, 1917, War D, as relates to Capt Omar H Quade, M C, is revoked

Capt Lloyd A Kefauver, M C, to Annapolis Junction, M D, Camp Meade, for commanding base hospital to be organized there

Capt Ernest R Gentry, M C, to Washington for duty

Capt Raymond W Bliss, M C, to duty at Camp Wheeler, Macon, Ga

Officers of M C now on duty as camp sanitary officer at the camp specified will report in person to C O of that camp for commanding the base hospital to be established there Capt W Cole Davis, Camp Dix, Wrightstown, N J, Capt James F Johnston, Camp Jackson, Columbia, S C, Capt Glenn I Jones, Camp Devens, Ayer, Mass Capt Kerwin W Kinard, Camp Sherman, Chillicothe, Ohio, Capt Henry C Michie, Jr, Camp Grant, Rockford, Ill, Capt Eugene G Northington, Camp Lewis, American Lake, Wash, Capt Neal N Wood, Camp Custer, Battle Creek, Mich

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Orders to Officers of Sanitary Corps

Capt. George J Gabriel, Sanitary Corps, to duty at St Louis

Capt Richmond Mayo Smith, Sanitary Corps, to New York Sanitary Corps, medical supply depot, for duty

Capt John W Hicks, Sanitary Corps, to duty at Chicago

First Lieut. Shelby G Fell, Sanitary Corps, to duty at Newport News, Va

The following officers of Sanitary Corps to report in person to the Surgeon General for assignment to duty in his office

Capts John B Copping, Patrick P Vane and Richard A Wood

Officers of Sanitary Corps to duty at camps specified as supply officers Capt William C Livingston, Camp Lewis, American Lake, Wash, First Lieuts James Sweeney, Camp Pike, Little Rock, Ark, *John Baigent, Camp Dodge, Des Moines, Iowa, and Herman J Weber,* Rockford, Ill

First Lieut. Harold J Feistel, Sanitary Corps, to duty at medical supply depot, New York, N Y

First Lieut. George W Ramaker, Sanitary Corps, to duty at San Antonio, Texas

First Lieut Max Weinberg, Sanitary Corps, to duty at Ayer, Mass

Orders to Contract Surgeons

Contract Surgs A I Beifeld and J C Friedman, Chicago, assigned to active duty central department

Orders of July 24 to Contract Surg R S Dorsett, Philadelphia, amended He is assigned to active duty for the purpose indicated in said order

The following assigned active duty, Kansas City, Mo in connection with the examination of the troops of the national guard for tuberculosis W W Drake Samuel Ayres and H D Hamilton

Contract Surg L V Klein Brooklyn will inspect the remount depots

The following contract surgeons assigned active duty with national guard I J Singer, H B Grensfelder and E W Taylor St Louis C G Dewey J B Ayer, H K Stedman F C Richardson J V Briggs D A Thom and I H Coriat Boston, and Abraham Myerson Taunton Mass

The following assigned active duty examining the troops in the vicinity of Albany for tuberculosis William Kirk E R Stillman and H W Carey

Contract Surg J A O Connell assigned active duty, Philadelphia examining for tuberculosis

First Lieut R L Patterson assigned active duty, report to Dr Van Manning, director of bureau of gas warfare investigation Washington

Capt Clark L Brown assigned active duty Washington

Capt Oscar Burkard assigned active duty Camp Upton as property and supply officer

Contract Surg R C Kirkwood, Coneter Iowa assigned active duty

Contract Surg F J O Connor assigned active duty at Toronto, Canada to examine applicants for aviation section

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Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH ETC)

CALIFORNIA

District Health Officers Appointed—At the meeting of the state board of health the following district health officers were appointed Northern Coast District Dr Allen S Gillihan, Berkeley, Middle Coast District Dr George B Hoitt, Manchester N H, Central District Ralph Nauss Berkeley, Southern District E A Ingham Boston, Northern District, Harold F Gray San Jose and Southern District Dr Edwin D Ward Los Angeles——Dr F H Kellogg Berkeley has been appointed director of the department of communicable diseases succeeding Dr J C Cummings, resigned to enter the federal service.——Dr Ida May Stevens has been appointed bacteriologist in the branch laboratory of communicable diseases, Los Angeles

Annual Registration Fee—Among the amendments passed by the 1917 legislature in California was one providing for a $2 registration fee payable to the Board of Medical Examiners by all holders of any form of certificates issued by the present or any previous licensing board of that state. The fee is due January 1 of each year Failure to pay the fee within sixty days automatically revokes the certificate, and must be paid in order to restore it. Thirty days prior to January 1 of each year the board will forward a notice to each certificate holder, and it is essential that licentiates notify the board of each change of address The board expects to publish each year a directory of the licensed practitioners of the state, physicians as well as osteopaths, and drugless healers and will send a copy to each licentiate who has paid his annual fee.

Personal.—Dr Anna E Rude San Francisco, has been appointed a member of the staff of the Federal Children's Bureau Washington, D C.——Dr Emmet L Wemple, a member of the staff of St Luke's Hospital San Francisco, was attacked, August 6, in the lobby of a hotel where he had gone to make a special call, and is under treatment at the Central Emergency Hospital——Dr T Percival Geroen, Los Angeles, was operated on in the Good Samaritan Hospital, Los Angeles August 1, on account of an injured knee——Dr Elizabeth Follansbee, Los Angeles, who has been ill in a hospital, is convalescent and has returned home.——Dr Herman S Senftner, formerly a member of the California State Sanitary Board, has been appointed state sanitary supervisor for that district of New York which includes Erie, Niagara, Orleans and Tennessee counties with headquarters in Buffalo——Dr Ernest B Hoag Pasadena medical psychologist to the Los Angeles Judiciary Court, has been appointed lecturer in criminology in the school of jurisprudence of the University of California, Berkeley

ILLINOIS

Clinic at State Hospital—A clinic on nervous and mental diseases was held at the Watertown State Hospital, August 23, under the auspices of the Iowa and Illinois Central District Society Cases of special interest were selected and presented by Drs Julius Grinker, Chicago, Charles F Reed, superintendent of the hospital, and Edward A Foley, first assistant

Health Zones Created—The state board of health has announced the creation of four special health districts, each embracing a zone adjacent to a military or naval camp site These districts are as follows

1 Camp Grant district including the city of Rockford Medical officer Dr Charles E West, Springfield sanitary health officer, P H Cooney Chicago

2 Great Lakes—Fort Sheridan district Health officer, Dr John Kappelman, Mt Vernon, sanitary officer, Dr Jerome Smejkal Chicago

3 Lincoln Lowden District, including the city of Springfield Medical health officer Dr John J McShane sanitary officer Edward Cowles.

4 Camp Chanute Aviation District including Rantoul Medical and sanitary officer Dr John J McShane Springfield

The executive officer of each of these districts will be the medical health officer and will report directly to the secretary of the state board of health

Chicago

Field Hospital Commander Transferred—Major Gustavus M Blech, commanding Illinois Field Hospital No 2, has been appointed assistant to the chief surgeon of the Thirty-Third Division, Camp Logan Houston, Texas, and left for his new post of duty, August 21

Graduate Lecture—Dr G Carl Huber, professor of anatomy in the University of Michigan, Ann Arbor, recently delivered an address on "Early Stages in Mammalian Development," before the faculty of students of the graduate summer quarter in medicine of the University of Illinois

Fine for Medical Fraud—Amante Rongetti was found guilty of having sold a false medical diploma recently, and was fined $2 000 in Judge Fitch's court Rongetti was indicted April 24, 1916 following action taken by the Illinois State Board of Health Dr Gaetano Ronga, a codefendant, was acquitted

Appropriation Asked for Contagious Diseases—Health Commissioner Robertson has asked for an appropriation of about $35 000 to fight the epidemic of contagious diseases due to the recent influx of colored labor in Chicago He recommends a house-to-house canvass, and vaccination in the localities where smallpox has been found

Personal.—Dr James M Neff has returned to Chicago after an absence of more than two years at the British Base Hospital, Etaples, France. Dr Neff has been commended in general orders for superlative service——Dr Harry R Hoffman, chief alienist of the Bridewell has been ordered to report to Ann Arbor for military service as a member of the psychiatric unit

Ambulance Company Starts East—The University of Chicago Ambulance Company No 3, under command of Capt Elbert Clark, has been called into actual service and entrained for Allentown, Pa, August 20 The company has a personnel of 180, and takes with it six ambulances four of which were donated by the friends of the institution and two by the American Red Cross It also has a motor laboratory donated by the students of the university, and five kitchens on wheels

INDIANA

Smallpox in Soldiers' Home—Two cases of smallpox have been discovered in the Soldiers' Home, Lafayette, and all the inmates have been vaccinated

Tuberculosis Cottage Donated—Mr and Mrs R Bockhoff, Richmond, have donated the first cottage to be built as a part of the Wayne County Tuberculosis Sanatorium.

New Hospital.—The Jeffersonville Tribe of the Improved Order of Red Men has purchased the former home of Marshall Hospital, which it proposes to remodel and open as a general hospital for the city

City Health Board Must Borrow—The City Health Board of Indianapolis has asked for a temporary loan of $45,000 to defray the expenses of the department until funds are available from the fall instalment of taxes

Sanatorium will Open Next Month.—Sunnyside Sanatorium, Oaklandon the Tuberculosis Institution of Marion County, will be opened in September, with a capacity of seventy patients, which will be increased later An outpatient department will be conducted in connection with the institution Dr Harold S Hatch has been appointed superintendent, and has already assumed charge of the institution

Personal—Dr John C McClelland, formerly health officer of Lafayette, has been commissioned captain, and assigned to duty with the Fourth Indiana Infantry——Dr Arett C Arnett has been commissioned captain, and assigned to the First Indiana Artillery——Dr C. E Cekul, La Otto, was caught under his overturned automobile near Sheldon, August 7, fracturing several ribs He is under treatment in a hospital in Fort Wayne——Dr William M Reser has been appointed secretary of the Lafayette Board of Health——Col Larue D Carter, Indianapolis, has been appointed chief surgeon of the state

IOWA

Hospital Items—Shenandoah is to have a new hospital, to cost about $45,000——The LeMars hospital has been purchased from Drs G Henry Mammen and Roy F Bellaire, and is now under the charge of the Sisters of St Francis of Dubuque The hospital has been enlarged and remodeled, and a Sister's home will be built on the property

National Guard Changes—Lieut. Larned Allen, Davenport, has been assigned to the staff of the chief surgeon——Lieuts Peter H Schroeder and John C Murphy, Davenport, have been assigned to the First Field Artillery——Major David S Fairchild, Jr, Clinton, and Pierre McDermid, Fontanelle, have been assigned to headquarters staff——Lieuts Willis H McClain and Redfield C Mills have been attached to the field hospital

Work of State Laboratories—By the annual report of Dr Henry Albert, Iowa City, of the state university, director of the state board of health laboratories, 23,272 examinations and preventive treatments have been given during the past year Of these, 8,994 were for diphtheria, 3,429 for tuberculosis, 1,965 for typhoid fever, 493 for meningitis, three for malaria and 163 miscellaneous All these were made at the central laboratory of the state university, Iowa City During the year twelve persons received the pasteur treatment for rabies, 165 were inoculated against typhoid fever, and seventy-six received smallpox vaccination, and 1,971 water analyses were made

Personal—Drs Henry Matthey and Walter Matthey, Davenport, who have been indicted for conspiracy against the government, have been released on a $2,000 bond——Dr Frederick H Lamb, Davenport, pathologist to the Marshalltown Hospital, was the guest of honor at a banquet given by thirty physicians of the city, August 8, and at the conclusion Dr Kuno H Struck, Davenport, on behalf of the physicians, presented Dr Lamb with a revolver——Dr David J Chinn, Bettendorf, is convalescent after more than two months' illness with septicemia——Dr J R Martin, Iowa City, has resigned as assistant surgeon of the Marshalltown Soldiers' Home, and has been succeeded by Dr George A Mershon, Mobile, Ala, formerly of Liscomb, Iowa

KANSAS

Hospital News—The Arkansas City Hospital has closed its doors for the present on account of the absence of Dr R Claude Young at the training camp, Fort Riley

State Board Election—Dr George M Gray, Kansas City, has been reelected president of the State Board of Medical Examiners, and Dr Henry A Dykes, Lebanon, has been reelected secretary for a fourth term

New Ambulance Company—Red Cross Ambulance Company No 44, Topeka, has been organized at Washburn University, and its personnel is composed chiefly of students of this institution Dr Charles H Lerrigo is in command of the company

Typhoid in Leavenworth—During the first six months of this year, Leavenworth had more than half the total number of cases of typhoid fever reported in all cities of first class of the state, and July 30, there were twenty-five cases of the in the city Dr William Prebble and Sanitary er J S Stredor, U S P H S, arrived in Leaven- ugust 5, to assist city physicians, Charles J McGee L Everhardy, in tracing the source of the typhoid ring the week ending July 28, seventeen new cases ed

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The Topeka Chapter of the American Red Cross through Dr William F Bowen, a base hospital unit——Dr Oliver D Walker has been reelected president of the Salina board of education——Dr John F Coffman, Jr, Marion, has been commissioned first lieutenant, M C, Kan N G, and assigned to duty with the Third Infantry——Dr William S Yates has been elected president of the board of education of Junction City——Dr Alexander J Jeffrey, Topeka, has returned after six months' service in an English base hospital near London——Dr Henry A Nave, Kansas City, has been judged insane, and committed to the State Hospital, Topeka

MARYLAND

Infantile Paralysis—Three new cases of infantile paralysis have been reported to the state board of health from Cumberland

Eastern Shore Election—The recently organized Eastern Shore Medical Society has elected Dr J McFadden Dick, Salisbury, president, and Dr Eldrige E Wolff, Cambridge, secretary-treasurer

Dr Dunton's Plan for Maimed Soldiers—In a talk before the Rotary Club during a luncheon at the Hotel Rennert, August 14, Dr William Rush Dunton, Jr, Towson, showed how maimed soldiers can be made useful citizens on their return from France His subject was "Occupational Therapy" or the work cure, which is recognized as the best single treatment for mental and functional disorders, particularly those resulting from shell shock Conversion of the physically or mentally crippled soldier, invalided back home from the front, into an economic asset, instead of allowing him to become a very definite liability, was the problem under discussion Part of the problem is enlistment of the interest and cooperation of employers of men for engaging cripples and "part-time" workers in jobs for which they can be adequately fitted Among Dr Dunton's suggestions were the employment of two "part-time" workers in the factories or plants for half a day each in cases in which one would break down under the strain of an all-day job, the employment by the city of one-armed men, physically sound otherwise, as traffic cops, the employment by dentists of deaf, one-armed, one-eyed, one-legged men—in extreme cases—for the job of cleaning patients' teeth preliminary to examination by the dentist, and giving home work to legless men, or perhaps teaching them stenography and typewriting for office work A staff of consulting physicians is already being gathered tentatively for the purpose of determining what work certain cripples could do best by testing out their mental and physical abilities Teachers in technical schools will be asked to aid in instruction of crippled soldiers mentally capable of being educated for technical positions, and the possibility was pointed out that a man too crippled to dig ditches or handle a saw could be taught to become construction boss

NEW YORK

New York City

Personal—Dr Aristine P Munn-Recht has been appointed the first dean of women at New York University——Rear Admiral Charles F Stokes, N S Navy, retired, has resigned the position of director of the Warwick Farm for Drug Addicts

Memorial Hospital for Brooklyn—Plans have been prepared and application has been made to the state board of charities for a hospital to be built as a memorial to Carson C Peck, formerly vice president of the F W Woolworth Company, and owner of the Brooklyn *Times* The hospital is to occupy a site bounded by Albany and Troy avenues, and Crown and Montgomery streets, Brooklyn It is aimed to make it like a comfortable hotel, with the hospital features kept as far in the background as possible

Venereal Clinics for Queens—The department of health, pursuant to its policy of extending its campaign against venereal diseases, has established venereal advisory clinics in each of the four health centers of Queens The medical advisor will consult only with those applicants who are not under the care of a physician, and who come to the health department seeking advice Under no circumstances will patients be interviewed who are sent by physicians or private institutions for the Wassermann and complement fixation tests, unless requests for advice by the physicians or institutions sending the patients All applicants are given a circular of information regarding venereal diseases, and a card of instructions regarding syphilis and gonorrhea

New Law Relating to Medical Advertisements—The Public Health Education Bureau of the department of health calls special attention to the new law relating to certain medical advertisements which was enacted at the last session of the legislature The passage of the law was prompted by the fact that misrepresentation practiced by quacks and unscrupulous nostrum manufacturers constituted one of the chief obstacles encountered by health authorities in dealing with venereal diseases Much of this misrepresentation appears in the advertisements still carried by certain newspapers and periodicals published in this city The new law designed to reach these offenders goes into effect September 1, and applies to both the advertiser ('who causes to be published') and to the publisher of this class of advertisements

Rockefeller War Hospital Formally Opened—July 12 the heads of the medical departments of the United States government and their staffs and a large number of Army and Medical Reserve officers, inspected the new Rockefeller Demonstration Hospital and the occasion was made the formal opening of the hospital Dr Simon Flexner described the work that the hospital expected to do and Dr Alexis Carrel and others made brief addresses and gave demonstrations It was stated that the serum for gangrene announced some time ago had reached a stage of development where it could be used on human beings The visitors also inspected the Columbia University War Hospital which differs from the Rockefeller Hospital in that the former is primarily for the treatment of the wounded while the latter is for demonstration work for physicians

NORTH CAROLINA

Ophthalmia Prevention—The state board of health is distributing to all physicians and midwives ampules of a 1 per cent silver nitrate solution to be used in the prevention of blindness, in compliance with a recent statute enacted by the legislature

Reporting of Communicable Diseases—Since August 1, the state board of health with a competent epidemiologist devoting his whole time to this department has been enforcing the new statute providing stringent regulations and the reporting of whooping cough measles scarlet fever typhoid fever, bubonic plague, smallpox typhus fever yellow fever diphtheria infantile paralysis Asiatic cholera and cerebrospinal meningitis The board fully realizes the necessity of cordial cooperation of the physicians in securing the beneficent effects of the new law, and their friendly aid has been invited in a special letter to each practitioner

OKLAHOMA

Personal.—Dr James J Williams Clinton has been elected president of the state medical board——Dr Frederick R. Sutton Bartlesville, is reported to be critically ill

License Revoked—Word was received from Oklahoma City, July 18 that the State Board of Medical Examiners has revoked the license of Dr Thomas E. Shepherd Tulsa, charged with having performed a criminal operation on Miss Lovce Smith, in May, which resulted in her death

Laboratory to Be in State Hospital—The governor has decided against placing the state health laboratory in the suite of rooms occupied by the health department in the capitol The laboratory therefore will probably remain in Guthrie until the new state hospital is ready for occupancy

National Corps Appointments—The following medical officers have passed the examination of the military board Major Hugh Scott and Lieut Ralph Mavity Field Hospital Oklahoma City, Capt Hector G La Reau and Lieut. J M Ferguson, Ambulance Corps Tulsa, Lieuts D S Graham, W P Fite and John Kay, Regimental Infirmary, Fort Sill

OREGON

New Medical Unit—Under the auspices of the University of Oregon Medical Department, a new unit is being recruited for a base hospital under the regulations of the American Red Cross

Personal.—Dr Robert Pilkington, Astoria has been confined to the house for a week on account of septicemia due to a wound of the thumb——Dr Ernest A. Sommer, Portland, who was thrown from a horse at Lummie Island, August 1, fracturing his clavicle, is reported to be doing well.——Dr Claude P Fryer, Independence, has been appointed bacteriologist in charge of the Tampa laboratory of the Florida State Board of Health——Dr Ralph C Matson Portland, is convalescent after an operation for appendicitis

PENNSYLVANIA

Philadelphia

Methodist Hospital Unit Nearly Complete—With the exception of three reserve nurses, the naval hospital unit of the Methodist Hospital is complete

Personal—Dr Charles R Turner has been appointed dean of the Thomas W Evans Dental Institute of the University of Pennsylvania, to succeed Dr Edward C. Kirk, who resigned last June

Three Ambulances for Red Cross—The students of the Friends' Central School have raised sufficient funds to purchase three ambulances, which recently were presented to the Red Cross The chassis were purchased from the Ford Automobile Company The J G Brill Company, Philadelphia, built the bodies in accordance with specified regulation trench ambulances now being used in France

City to Treat Teeth of Rejected Men—The city has thrown open its Dental Dispensary City Hall for the free treatment of the teeth of men who have been drafted or have volunteered for the Army and have been rejected because of defective teeth Dr Edwin S Mershon chief of the dispensary, has asked Dr Krusen director of health and charities, to increase the staff of dental surgeons and to keep the dispensary open until late in the evening, if necessary He also made arrangements with the Dental Preparedness League, whereby each member agrees to treat one soldier free

VIRGINIA

State Admitted to Birth Registration Area—August 8, Virginia was admitted as the first southern state to the birth registration area of the United States, which includes only those states in which public health work in general and vital statistics in particular, have reached the grade of proficiency that make the figures compiled reasonably accurate This decision was made after a searching investigation of the vital statistic records of the state by special agents of the Census Bureau

Hospital News—The Riverside Hospital, Newport News has purchased a nurses' home in order that the third floor of the hospital may be used wholly for hospital purposes The home, with the changes and improvements required, will cost $10 000——The Medical College of Virginia Memorial Hospital, Richmond has been authorized to proceed with the erection of a three-story brick hospital building which is to be a part of the new group of the Memorial Hospital This building will be the contagious pavilion, and will cost about $40,000 It has been donated to the institution by Major James H Dooley

WASHINGTON

Medical Corps Assignment.—Lieuts Robert N Hamblen and Max R. Charlton, Spokane, have been assigned to duty with Field Hospital No 30——Lieut. Arvid Anderson has been transferred from the Eighteenth Infantry to Field Hospital No 30

Returns from Russian Mission—Dr Eugene D Hurd, Seattle, who accompanied the American Mission to Russia returned, August 3 Dr Hurd holds the commission of colonel in the medical corps of the Russian army, and has had two years of service in the Galician and Carpathian campaigns

Tuberculosis Foes Meet—At the annual meeting of the Washington Association for the Prevention and Relief of Tuberculosis, held in Tacoma, July 27, the following officers were elected president Dr Christen Quevli (reelected), vice presidents, Drs Clarence A Smith Seattle, and Mrs R. C McCredie Sunnyside, executive secretary, Mrs Beth B Buchanan Seattle (reelected), and executive treasurer, J A. B Smith, Seattle (reelected) The proceedings of the meeting concluded with the dedication of the Children s Pavilion at the Mountain View Sanatorium The building will be ready for occupancy this month, and will have accommodation for thirty patients

WEST VIRGINIA

Sanatorium Opened—The View Point Sanatorium of the Ohio County Anti-Tuberculosis Society was formally reopened August 6 The institution will be able to care for about thirty patients

Personal.—Dr William C Etzler has resigned as health commissioner of Wheeling and has been succeeded by Dr Mayes B Williams——Dr Martin R Casey Weston, has been appointed a member of the medical staff of the Weston State Hospital

Sanatorium Board Named—The governor has named the following commission of colored practitioners to locate the proposed State Tuberculosis Sanatorium for Colored People Drs Augustus L. Critchlow, Charleston, Roscoe C Harrison, Kimball, and Henry F Clay, Louisville

New Board Members—Governor Cornwell of West Virginia has appointed Drs Vincent T Churchman, Charleston, H Luther Clark, Kyle, and Hubert E Gaynor, Parkersburg, as members of the public health council in place of Drs W William Golden, Elkins, William J Davidson, Parkersburg, and Joseph E Robins, Charleston, whose terms had expired The public health council has in charge the licensing of physicians in West Virginia

WISCONSIN

Trachoma Should Be Reported—Health Commissioner Ruhland of Milwaukee is making a strenuous effort to induce state authorities to include trachoma among the reportable communicable diseases This has already been done in New York, Ohio, Massachusetts, Pennsylvania, Kansas and Louisiana

Personal—Dr William H Schnell, Superior, has been appointed junior local surgeon for the Minneapolis, St Paul and Sault Ste Marie Railway at Superior——Dr Isaac G Babcock, Cumberland, who has been seriously ill with diphtheria, is reported to be improving——Dr Charles H Van Hise, Madison, has been elected the university member of the state board of education, succeeding Lieut-Col Gilbert E Seaman, Milwaukee, chief surgeon of Wisconsin

GENERAL

Diploma Stolen—Dr Wilbur Kenneth Brown, at present employed at Barnes Hospital, St Louis, reports that his diploma, issued by the Washington University Medical School, June 14, 1917, has mysteriously disappeared He believes it has been stolen Licensing boards should, therefore, be on the lookout for it.

Change of Meeting Place—The annual meeting of the American Public Health Association, which was to have been held in New Orleans in December, will be held in Washington by direction of the executive committee The reason for this change is said to be because war hygiene will be the central theme of discussion, and Washington is the city of all others where information regarding the sanitary problems of armies is being concentrated

Antituberculosis Work Grows—In summarizing the work of the state legislatures during their last session, the National Association for the Study and Prevention of Tuberculosis finds that thirty-eight legislatures enacted antituberculosis laws, and fourteen passed laws relating to county tuberculosis hospitals The legislatures of Alaska, Arizona, New Mexico, Porto Rico, Utah, Hawaii and Nevada failed to take action in this direction

Guard Germs with Care—Hospitals, medical colleges and laboratories throughout the country have been requested by Surg-Gen Rupert Blue, U S P H S, to inform him at once if they maintain cultures of anthrax, tetanus, diphtheria, bubonic plague, Asiatic cholera, tuberculosis, typhoid fever, paratyphoid fever, and related organisms, and stating that none of these cultures should be given out, excepting to physicians who can be personally vouched for

Bequests and Donations—The following bequests and donations have recently been announced

Johns Hopkins Hospital, Baltimore, $300,000, and New York Hospital, residuary legatee of the estate of James Buchanan Brady

St. Agnes' Hospital, Philadelphia, $500, St Joseph's Hospital, Philadelphia, and two other Catholic charities one fourth of the remainder of the estate of Ellen McCabe on the death of her sister

St Vincent's Home and Maternity Hospital, Philadelphia, $5,000, by the will of Ella L Lane, and $500 by the will of Rose McClinchey

Mount Sinai Hospital and Montefiore Home and Hospital, New York, and Zion Home, Buffalo, each $1,000, by the will of Norbert Gunsburger

Death of Roumanian Ophthalmologist in This Country—G Stanculeanu, professor of ophthalmology at the University of Bucharest until the German invasion, who has been lecturing in this country in the interest of the Roumanian government, died recently at a sanatorium at Stamford, Conn, of pneumonia Dr Stanculeanu arrived in New York two or three months ago, and suffered a nervous breakdown When the Germans invaded Roumania he and his wife fled, leaving behind all their property except what they could carry in a handbag Later they were sent to America on a mission by the Roumanian government

FOREIGN

Meningitis in London—The *British Medical Journal* states that in London, from January 1 to June 16, there have been 307 cases reported of cerebrospinal meningitis, including ten military cases, with 164 deaths The corresponding figure for last year was 295 cases

Deaths in the Profession Abroad—Lieut.-Col **A W D Leaky**, retired, London——Lieut **A Atkinson**, London, aged 57——**J P Steele** of Rome and Florence, retired, the Italian correspondent of the *Lancet*, aged 81——Capt **I Macfarlane**, before the war for several years a medical missionary in Palestine, of late in charge of a typhus isolation camp in Egypt, died of typhus in July——**C Bourdillon**, Marseilles——Major **L Augier**, Evaux-les-Bains——**F Le Corre**, Angers From recent casualty lists British **E S Calthrop**, Lieut-Col **F J C Heffernan**, Major **J Aitken**, Lieut **J S Munro**, Lieut **S C Ellison**, Major **R C Tweedy**, Capt **F A Deravin**, Australian A M C French **J Lecerf**, Capt. **F Belmont**, **M Bergoend**

Santos Fernandez' Seventieth Birthday—The scientific societies of Cuba recently joined to present a gold souvenir medal and parchment to Dr Juan Santos Fernandez of Havana on the occasion of his seventieth birthday The Academia de Ciencias, of which he is president, devoted a special meeting to the ceremony of presentation. Santos Fernandez has always taken a prominent part in promoting the progress of medicine and of the profession in Cuba, and especially the progress of his specialty, ophthalmology He has never occupied an official position, but his numerous works on ophthalmologic and public health subjects have carried his name far It is said that he has presented more than a thousand communications at meetings of different scientific organizations

PARIS LETTER

Paris, July 26, 1917

The War

TREATMENT OF PENETRATING ABDOMINAL WOUNDS IN THE HOSPITALS AT THE FRONT

Dr Quenu, professor of the surgical clinic at the Faculté de medecine de Paris, in reference to several communications on penetrating abdominal wounds which have been addressed to him by surgeons operating with the advance formations at the front, affirms that at the present time the cause of laparotomy in the treatment of abdominal war wounds appears to be definitely won A number of questions connected with it remain to be decided (1) the indications for operation, (2) the operative technic, and (3) the transport of the wounded

1 The indications for operation are based on the probability of an abdominal penetration, but this probability cannot always be established by a study of the symptoms, since, for the first few hours, these may be effaced Even the sign of the contracture, though localized, may be lacking One must not be deceived by the fact that the clinical picture is temporarily benign, and it is important to verify the penetration or the nonpenetration by a direct examination of the wound if this is, in any way, possible It should also be remembered that wounds some distance away from the abdomen may be the ports of entry for abdominal lesions While the probability of a penetration should point toward an operation, the general condition of the patient must always be considered Dr Rouvillois, in 116 cases of penetrating visceral wounds, abstained from an operation because the general condition was so precarious that any intervention would have been unpardonable In this connection, one must attribute great importance to a pulse that is so weak as to be scarcely perceptible, and also to any considerable lowering of the blood pressure

2 The operative technic seems to have made great progress The systematic examination of all the organs in the path of the projectile must be scrupulously performed, but the mode of procedure is not so evident Depage practices total evisceration *en bloc*, following this up with copious irrigations of warm serum Other surgeons, most of them, in fact, proceed differently They make an incision in the abdomen, noting that the wounded loops of intestine have a tendency to present themselves first in the wound The wounded coils are first taken up and repaired, which does not prevent proceeding to a complete evisceration, provided the condition

of the intestine requires it The latter technic appears preferable to Depage's, since it seems to expose the patient less to the danger of shock and would appear to be just as certain in its results What attitude should be taken toward lavage of the intestine and of the abdominal cavity? That one should irrigate copiously the coils touched and infected by the traumatism, that one should even perform a lavage of the abdominal cavity with warm serum when the whole abdominal cavity is infected and there appears to be no other way of cleansing it, is all very well, but when the infection is localized, the lavage appears to be fraught with danger, and to tend to diffuse infection

3 The question as to the conditions under which the wounded can be best transported is a very important one So much is certain namely that the ideal condition would be not to have to transport the wounded at all but to operate on them a few hundred yards from the point where they fall It is incontestable that the best statistical results have been obtained by the surgeons who by reason of the peculiar circumstances under which they were working have been able to approach these conditions Here arises the great controversial question of the forward first-aid stations Quenu regards the advance first-aid station as an excellent creation in a war in which a high degree of stabilization is possible also under certain conditions of natural protection offered by the peculiar topography of the country The organization of the advance first-aid stations requires a great deal of time and labor, and the returns are hardly adequate In this branch of the medical service the conditions of evacuation are often uncertain It is in short, a very peculiar part of the service In a campaign in which the movements of the contending forces cover a large territory safety for the first-aid corps can be found only in a chance protection which is sometimes afforded by the physical features of the country sometimes by a building erected by the hand of man or what is much more common, by remaining at a distance from the firing line. In view of these facts the motor hospital ambulances with their perfect technical equipment and their details of expert surgeons were called in to strengthen the service In actual practice however these ambulances which were created especially in order to meet the need of first aid and to treat particularly abdominal wounds have been located sometimes 7 miles, sometimes from 15 to 20 miles distant When they have been placed only 7 miles away they have been able to do good abdominal surgery but when much farther removed they have been handicapped and on one tour of inspection Quenu observed that some of these units did not receive any wounds of the small intestines while others received them only after they had become inoperable Perhaps it would be advisable to return to automobile units less unwieldy than the present ones—that would be able to operate at a distance of 6 or 7 miles from the firing line A better method of transporting the wounded from the firing line to the ambulance should be devised so that the jolting and shaking which affects so seriously men suffering from abdominal wounds, might be reduced to a minimum Any improvement brought about in the method of transportation the modes of suspension etc, would be of advantage also to the wounded of other classes even though the improvement has not for them the same essential importance

ANESTHESIA AND ANESTHETICS IN WAR SURGERY

Dr Bilhaut surgeon of the Hopital International de Paris, has addressed a communication to the Societe de pathologie comparee on the subject of general and local anesthesia in war surgery He accords the preference to chloroform He finds chloroform easier to administer than ether and less likely than ether to cause a chilling of the respiratory tract such as may produce pneumonia or pulmonary congestions In 812 important operations performed by Bilhaut there were no unhappy results from the use of chloroform The reaction on the liver has been found negligible In case an operation may require some time the surgeon should have recourse to general anesthesia. During the course of an operation it is deplorable to have to substitute narcosis for local anesthesia Therefore from the very outset the surgeon should make a definite choice and in case of doubt he should decide in favor of general anesthesia In skeletal lesions, which are so frequent, general anesthesia is indispensable Long bone resections and the removal of bone splinters should be undertaken with scrupulous care, even down to the minutest details in order to preserve the periosteum, as the significant experiments of Professor Ollier have proved Without general anesthesia, one cannot bring to a satisfactory conclusion this extremely delicate work, which is indispensable in order to secure anything like complete restorations It is only by proceeding thus that Bilhaut has obtained in his war surgery the complete reparation, without shortening (real or apparent), of extensive losses of substance in the long bones Local anesthesia (cocain, stovain, novocain, freezing) should be confined strictly to minor operations of short duration.

Dr Fiessinger has called attention to the fact that the results obtained by Bilhaut seem to prove that the operations performed on soldiers under war conditions give better results than in times of peace It seems as if the new conditions created by the war have brought about an increase in the potency of organic defense Under ordinary conditions it seems that ether might possibly be superior as an anesthetic to chloroform since it does not cause alterations of the hepatic cells, however, it would appear from the communication of Bilhaut that under the existing conditions, chloroform has lost part of its injurious properties

THE MORE REMOTE FUNCTIONAL RESULTS FROM THE RESECTION OF THE KNEE IN TREATING WAR WOUNDS

At one of the recent meetings of the Société de chirurgie de Paris Dr Bégouin of Bordeaux presented a communication on this subject He has had an opportunity of examining about one hundred resections of the knee, and has preserved notes on seventy-seven of these In these operations he affirms that generally speaking, the functional results were excellent leaving the leg perfectly utilizable for walking and standing which constitute its essential function Only in fifteen cases were the results distinctly bad In order to obtain in resection of the knee such results as shall justify its being considered an excellent operation, two conditions are required (1) an exact operative technic, at least as regards the ablation of a thin slice of bone which removes at the same time the cartilage from the end of the tibia and the femur, a bony ankylosis being the object desired from the resection of the knee, which cannot be brought about if a cartilaginous covering is left on either of the two bones, (2) a prolonged postoperative surveillance in order to maintain an immobilization of the member in extension with the bony surfaces in close contact until the bony ankylosis is complete These are the two essential conditions of success, but it is well to make this emphatic for the neglect of these points is the cause of the failures observed by Begouin incomplete resection lack of care in maintaining the bony surfaces in juxtaposition allowing one bone to slip past the other with the consequent deviation of the lower leg, and the poor support of the foot.

Marriages

Lieut Elias Cecil Fischbein, M R. C, U S Army, to Miss Florence Givens Smith, both of Sonyea, N Y, at Rochester, N Y, August 8

Joseph Emil Artigues, M D, San Francisco, to Mrs Noelie Morcel of Constantinople, Turkey, at San Francisco, July 30

Lieut Samuel Jaffe, M R C., U S Army, Norristown, Pa, to Miss Lily Bailey of Alliance, N J., in New York, July 7

Chester D Sewall, M D San Francisco, to Miss Vernie L Gregory of Redding, Calif, at Castle Rock Calif, August 4

Capt Julian Mast Wolfsohn M R. C, U S Army, San Francisco, to Miss Ethel Liebes of London England, July 25

Lieut Robert Parvin Williams M C, U S Army to Miss Barbara Rebecca Murray at Douglas Ariz, July 21

Lieut James Steinberg M. R C, U S Army, Los Angeles, to Miss Helen Marie Jonas of Hollywood, Calif, July 29

Asst Surg Hugh John Duffy, U S Navy, Chicago, to Miss Jessie Sullivan of Denver, at Chicago, August 9

Edmund McCollam Connely M D, to Miss Frances Rocker Bisland, both of New York, July 21

Aaron Samuel Torrens, M D, to Miss Myrtle Myra McClarkin, both of Portland Ore., June 27

Lieut Clarence Stiles McKee, M R. C., U S Army, to Miss Edna Stiles of New York, August 4

Philip John Trentzsch, M.D, Rives Tenn., to Miss Velma O Schmitt of Dodgeville Wis, July 31

Isadore Emil Cohn, M.D, to Miss Dolly Newman, both of Chicago, recently

Deaths

Walter Hawthorne Rowan, M D, Jackson, Miss, Memphis (Tenn) Hospital Medical College, 1902, aged 42, formerly a Fellow of the American Medical Association, state sanitary inspector for Mississippi from 1912 to 1914, later appointed by the International Sanitary Commission as director of sanitation work in Guatemala, and since that time and until recently superintendent of the Mississippi Tuberculosis Sanatorium, Magee, one of the leading sanitarians and hygienists of the South, died, August 7, at a hospital in Jackson

Frederick Walter Smith, M D, Syracuse, N Y, New York University, New York, 1881, aged 58, a Fellow of the American Medical Association, a member of the American Public Health Association, health commissioner of Syracuse from 1891 to 1897, and health officer of the city since 1902, a member of the state board of health from 1895 to 1901, coroner of Onondaga County for several years, obstetrician to St Joseph's Hospital, died at his home, July 31, from cerebral hemorrhage

Charles Boyd Kelsey, M D, New York, College of Physicians and Surgeons in the City of New York, 1873, aged 66, formerly a member of the Medical Society of the State of New York, assistant demonstrator of anatomy in his alma mater, from 1874 to 1879, professor of diseases of the rectum in the University of Vermont, Burlington, in 1889 and 1890, and since 1890 occupying the same chair in the New York Post-Graduate School, a specialist in proctology and author of several works on that subject, died at his home, August 4

Major Charles Clarence Billingslea, M C, U S Army, University of Maryland, Baltimore, 1900, aged 39, a Fellow of the American Medical Association, who entered the Medical Corps, June 2, 1902, was made captain five years later, and was promoted to major in May, 1915, in charge of the sanitation work at Camp Meade, Annapolis Junction, Md., was found dead in his tent at the cantonment camp, August 16, from the effects of an accidental gunshot wound of the head

Walter D Greene, M D, Buffalo, University of Buffalo, N Y, 1876, aged 64, a Fellow of the American Medical Association, and a member of the American Public Health Association, formerly president of the Medical Society of the State of New York, clinical professor of genito-urinary diseases in his alma mater, surgeon to the Erie County and Buffalo hospitals, for five years health commissioner of the city, died at the home of his brother at West Falls, August 3, from heart disease

Ira Irving Nicol, M D, Mason City, Iowa, College of Physicians and Surgeons, Keokuk, Iowa, 1895, aged 66, formerly a member of the Iowa State Medical Society, for thirteen years surgeon for the Milwaukee System at North English, Iowa, and editor of the North English *Record*, for two years surgeon for the Northwestern System at Mason City, died at his home, August 4, from cerebral hemorrhage

David Ben Bentley, M D, Sarnia, Ont, Trinity Medical College, Toronto, 1890, aged 52, an officer of the Canadian Army Corps and a member of the first unit to go abroad, died in Ramsgate, England, April 5, after two and one-half years of service in France and England, from pneumonia complicating nephritis

William A. Keegan, M D, Rochester, N Y, Chicago Homeopathic Medical College, 1888, aged 55, for many years visiting surgeon to the Homeopathic Hospital, Rochester, and at one time president of the staff, a member of the Medical Society of the State of New York, died at his home, August 8, from angina pectoris

Dwight Gordon Smith, M D, Washington, D C, George Washington University, Washington, D C, 1903, aged 44, a Fellow of the American Medical Association, for twelve years a member of the staff of the Emergency and Children's hospitals, Washington, died in the Emergency Hospital, July 31

Harvin C Moore, M D, Houston, Texas, Tulane University, New Orleans, 1898, aged 42, a member of the State Medical Association of Texas, and once president of the Harris County Medical Society, died in a sanatorium in Houston, August 7, ten days after an operation for appendicitis

John Hamilton Potter Hodgson, M D, New York, University of Virginia, Charlottesville, 1888, College of Physicians and Surgeons in the City of New York, 1889, a member of the Medical Society of the State of New York, died at his summer home, on Muskoka Lake, Ont., August 4, from heart disease

Floyd B Olney, M D, Fort Dodge, Iowa, Hahnemann Medical College, Chicago, 1881, aged 66, a member of the Iowa State Medical Society, was instantly killed, August 8, when his automobile was struck by an Illinois Central passenger train on a grade crossing near Pomeroy, Iowa.

Homer H Warner, M D, New York, University of Vermont, Burlington, 1869, aged 79, formerly medical officer of the New York Fire Patrol, surgeon of the First Massachusetts Volunteer Cavalry during the Civil War, died at his home, August 12, from nephritis

David M Taylor, M D, Garrison, Tex, Memphis (Tenn) Hospital Medical College, 1902, aged 40, formerly a member of the State Medical Association of Texas, died in the Whiteside Sanatorium, Timpson, Texas, August 2, after an operation for appendicitis

John Hobson Womack, M D, Catham, Va, University College of Richmond, 1901, aged 48, formerly a Fellow of the American Medical Association, a member of the Medical Society of Virginia, died in the Danville (Va) Hospital, May 5, from nephritis

Marx Stecher Wiesen, M D, Philadelphia, Medico-Chirurgical College of Philadelphia, 1914, aged 26, died in St Agnes' Hospital, Philadelphia, July 31, from the effects of a gunshot wound of the chest, received in a fight with a burglar, July 12

Frances Tudor Weed, M D, Los Angeles, University of Michigan, Ann Arbor, 1895, aged 58, formerly deputy health officer of Grand Rapids, Mich, while crossing a street in Los Angeles, August 3, was crushed between street cars and instantly killed

Stephen T Lea, M D, Holly Hill, S C, Medical College of the State of South Carolina, Charleston, 1877, aged 61; formerly a member of the South Carolina Medical Association, died suddenly at his home, August 2, from acute gastritis

Warren Lawton Whitmore, M D., New Haven, N Y; Syracuse (N Y) University, 1895, aged 47, formerly a member of the Medical Society of the State of New York, died at his home, June 12, from cerebral hemorrhage

Ernest M Sellards, M D, Ashland, Ky, Kentucky School of Medicine, Louisville, 1893, aged 45, a member of the Kentucky State Medical Association, died at his home, August 4, from meningitis following an attack of rheumatism

Marion D Snyder, M D, Dunmore, Pa, Jefferson Medical College, 1896, aged 46, formerly a member of the Medical Society of the State of Pennsylvania, died at his home, May 27, from pernicious anemia

Frederica R Baker, M D, Chicago, Hahnemann Medical College, Chicago, 1895, aged 52, formerly a member of the Illinois State Medical Society, died at her summer home, near Peacock, Mich, August 7

Charles Sumner Hitchcock, M D, Toledo, Ohio, Physio-Medical College of Indiana, Indianapolis, 1890, aged 51, a Fellow of the American Medical Association, died at his home, August 7, from neuritis

Eugene Francois Marguerat, M D, Chicago, Rush Medical College, 1895, aged 47, a member of the Illinois State Medical Society, died at his home in Chicago, August 9, from chronic gastro-enteritis

Hubbard L Gillette, M D, Washington, D C, Baltimore Medical College, 1889, aged 68, a member of the Medical Society of the District of Columbia, died at his home, May 12, from uremia

Jacob J Frankel, M D., Philadelphia, Medico-Chirurgical College of Philadelphia, 1899, aged 46, a Fellow of the American Medical Association, died in his office, recently, from heat prostration

James Arthur Ross, M D, Barrie, Ont, University of Toronto, Ont, 1889, L R C P, L R C S (Edin), L R S P & S (Glas), 1892, aged 50, died at his home, May 1, from pernicious anemia

Frederick Theodore Harpel, M D, Shamokin, Pa, Hahnemann Medical College, Philadelphia, 1900, aged 41, died in the Coshocton (Ohio) Sanitarium, about August 1, from heart disease

Andrew Barclay Mercer, M D, Alexandria, Ind, University of Michigan, Ann Arbor, 1884, aged 63, died at his country home near Alexandria, August 7, from cerebral hemorrhage

The Propaganda for Reform

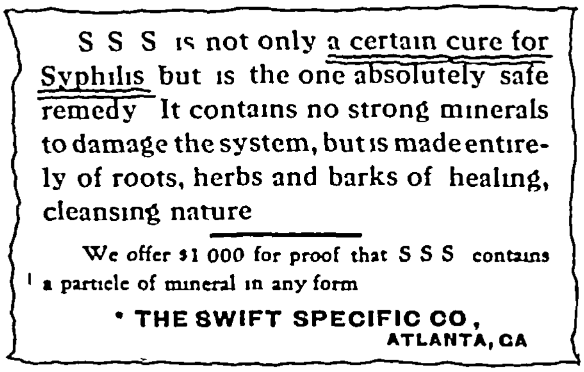
In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

SOME MISCELLANEOUS NOSTRUMS

S S S — Swift's Sure Specific' according to the manufacturer is made from purely vegetable ingredients' The only real information that the manufacturer gives regarding its composition is that which the government compels, namely, the alcohol content—15 per cent The dose recommended is from one to two tablespoonfuls four times a day The Swift Specific Company claims that this imparts just the slight exhilaration that nearly all women find beneficial As the alcohol-content of S S S is nearly one third of that of raw whisky, a woman taking eight tablespoonfuls (4 ounces) of this preparation daily would be getting the alcohol equivalent of more than one bottle of beer every day

S S S is sold under the claim either direct or inferential that it will cure syphilis (blood poison') In a booklet issued some time ago the Swift Specific Company, discussing secondary syphilis said

> Until the discovery of S S S no remedy was known that could completely wipe out the disease and restore the sufferer to health but S S S clears out the whole thing root and branch, and leaves the physical organism of the patient unimpaired



S S S is not only a certain cure for Syphilis but is the one absolutely safe remedy It contains no strong minerals to damage the system, but is made entirely of roots, herbs and barks of healing, cleansing nature

We offer $1 000 for proof that S S S contains a particle of mineral in any form

THE SWIFT SPECIFIC CO,
ATLANTA, GA

A page from one of the older booklets sent out by the Swift Specific Company At that time the concern made no secret of the claim that S S S was offered as the one absolutely safe' and certain cure for syphilis

In the same booklet under tertiary syphilis, it was said

> In tertiary Syphilis S S S acts with amazing effect and rarely ever fails to produce a complete cure many cases the most malignant the most virulent the most hopeless have been cured by S S S

In a personal letter written some time ago to a victim of syphilis the 'medical advisor' of the Swift Specific Company wrote, in part

> We regret to know that you are suffering from Syphilis. Syphilis is a blood disease and the only way to cure it permanently is to cleanse the blood from all impurities and there is nothing that will purify your blood more thoroughly and quicker than S S S We advise you to continue taking S S S regularly It is decidedly the best thing you can take. It will cure you in less time that any other remedy and the cure will be permanent In S S S we have the only vegetable antidote to syphilis that has ever been discovered

In another letter the company said

> For more than forty years S S S has been recognized as the one remedy for Syphilis. Thousands upon thousands have been cured through its use

In a booklet accompanying the previous letter the statement was printed in large, black-faced type

> S S S is not only a certain cure for syphilis but is the one absolutely safe remedy

Because the better class of newspapers are recognizing that there is no possible justification for the sale of an alleged remedy for the self-treatment of so serious a disease as syphilis—a menace alike to the individual and community—the newspaper advertisements of S S S no longer feature the alleged curative values of the preparation in syphilis It is now 'rheumatism" and "impure blood" The purchaser of S S S, however, is urged to write for the "Special Book on the Blood' which "covers all forms of blood impurities" and 'goes deeply into the subject of mercury, iodid of potash, arsenic and other mineral drugs" The booklet purports to "enable one to properly treat syphilis under the use of S S S together with such medical advice as we give gratis by correspondence" It further states that the treatment of syphilis is a simple matter"

To sell such a mixture as S S S as a cure for a disease like syphilis is much on a par with selling a simple gargle as a "cure" for diphtheria

Kaufmann's Sulphur Bitters—This preparation was marketed by A P Ordway & Co of New York which was the trade name of Aaron P Ordway According to the label, the product has the following formula

> Sublimed Sulphur (triturated) 2 gr Gentianae Radix 31 gr Prunes Virginiana 31 gr Aloe Socotrina 19 gr Eupatorium 16 gr Tanacetum 6 gr Balmony 16 gr Podophylum 140 gr Senna Indica 140 gr Calamus 31 gr Aqua Pura Q S 10½ oz. Alcohol Absolutum 22 30 per cent"

It was sold under the claim that it was an effective remedy for scrofula, catarrh, salt rheum, rheumatism, fever and ague, ulcerations as well as effective in the treatment of diabetes and for curing and preventing the return of syphilis It was also said to be a cure for leprosy These claims the government declared were false and fraudulent, made knowingly and in reckless and wanton disregard of their truth or falsity The government further charged that the claims that the preparation consisted of an appreciable amount of sulphur in solution with liquids, combined by means of a process discovered by Dr Kaufmann, were false and misleading in that they were not true. Ordway pleaded guilty and was fined $100—[*Notice of Judgment No 4370*]

Correspondence

ABSORBABLE METAL CLIPS AS SUBSTITUTES FOR LIGATURES AND DEEP SUTURES IN WOUND CLOSURE

To the Editor —Referring to Dr Andrews' article on this subject (The Journal July 28, 1917, p 278) I think it might be interesting to your readers to learn that I went over much of the same ground fully twenty years ago, and also to hear of the disappointing results of my experiments

Catgut sutures were not then as satisfactory as now To obviate the danger of infection from them, and at the same time to facilitate vessel ligation, I devised a small 'horseshoe-shaped metal clip" and a specially constructed instrument by which to attach and compress it This instrument, a cut of which then appeared in the catalog of a leading instrument firm in New York City, was so constructed as to catch up the bleeding point with a sliding tenaculum and draw it within its forceps jaws that held the tiny staple, and also compress the artery as it was brought together The metal which I utilized for this horseshoe clip was not silver, as was that later employed by Dr Harvey Cushing in his brain work, but aluminum I demonstrated the principle and method of employment of my clip to the late Dr Morton of Philadelphia, and asked his opinion of it. He contemptuously replied that he could tie vessels with catgut much faster than I could clamp them, and that it would be silly to fill a wound with irritating and permanent foreign material (I had laid no claims to the absorptive properties of aluminum) I was not discouraged and for several years employed my aluminum clips Finally I was forced to discard them for the following

not the service of the serious stammerer best be rendered in a form of military service in which the lives of others were not immediately jeopardized by his inability to express himself for example, in the commissary, or hospital, or similar service?

Elmer L. Kenyon, M D, Chicago

COMMON SENSE AND THE SYNTHETICS

To the Editor —While the Therapeutic Research Congress is legislating out enemy patents while the National Research Council is engaged in facilitating the manufacture of synthetic drugs pharmacologists and clinicians should begin an intensive unprejudiced investigation into the merits of the synthetics I believe that our gullibility has been capitalized and that we have been systematically imposed on by commercial scientists Our sincere appreciation and gratitude toward foreign medical exponents has led us to take their recommendations unchallenged

If aspirin were common property and cheap and sodium salicylate patented and expensive perhaps no one would think of using aspirin Is not the cheaper drug more efficacious, more prompt and more certain in its action? Let clinicians state their views on this point

We know the impotence of alkaloids in pneumonia We know the dictum when the heart is invaded by a toxin, nothing is of avail Quinin in all doses has been tried in pneumonia and I feel that in the end ethyl hydrocuprein which is closely related to quinin will not be found more efficacious even when given under the patent name Optochin '

With all respect to the great Unna I suspect that he would not have seen such cures by ichthyol if it were not an exclusively Tyrol fossil An ointment of sulphur and oil of cade such as the Compound Sulphur Ointment N F, has served me equally well

Some time ago methylene blue was used with alleged wonderful results in gonorrhea cancer indolent ulcers, etc. Now scarlet red is in vogue The war has brought forward other methods of securing healing Soon they will all yield the palm to a patented crimson red ' This is not a sarcasm It is a prediction logically deduced from a mass of known facts and experiences

The labors of the National Research Council no matter how successful will be of little avail It will produce synthetic drugs But as soon as the war ends foreign pharmaceutical houses will deluge us with essentially the same substances They will be newly named patented expensive, and bearing loud testimonials Our old established drugs, which nobody cares to advertise will soon lose ground and then become obsolete

Fortunately for us Americans we do not need this war to rid us of 'divine rights Let us use it to rid ourselves of sophistry and blind faith. Let common sense come to its own.

Jacob Lasski, M D, Chicago

AN APPEAL FOR AID FOR BELGIAN AND FRENCH PHYSICIANS

To the Editor —I fear that many of your readers, owing to the activities of the war and the absences of the summer may not have seen my recent letter appealing for help for our Belgian or French confreres On the conclusion of peace these physicians will return to devastated homes and looted offices, with nothing but their hearts their heads and their hands to serve them in diagnosis and treatment The committee in Paris is endorsed by our colleague, Dr Joseph A. Blake.

I trust that a generous response to this appeal for help to refit their offices may be forthcoming I well know the unending appeals for money But suppose that we were the victims! That will decide in favor of sending aid to them, I am sure.

I will acknowledge all gifts through The Journal.

W W Keen, M D, Philadelphia

"RED CROSS" BASE HOSPITALS

To the Editor —It has occurred to me that a hospital located near the firing line or where there is danger from air men dropping bombs might have its various units arranged in the shape of a Geneva Cross with the roofs painted bright red An aviator would have to be very high up in the air not to be able to recognize the group of buildings as a red cross Base hospitals now paint a large red cross on their roofs, but this plan surely would be much better

Joseph B De Lee, Chicago

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska Juneau Sept 4 Sec. Dr S P Dawes Juneau

Arizona Phoenix Oct 2 3 Sec Dr John Wix Thomas, 306 Goodrich Bldg Phoenix

Colorado Denver Oct 2 Sec Dr David A Strickler 612 Empire Bldg Denver

Hawaii Honolulu Sept 10 13 Chairman Dr Grover A Batten, 1141 Alakea St Honolulu

Idaho Pocatello Oct 2 Sec Dr Charles A Dettman Burke.

Massachusetts Boston Sept 11 13, Sec, Dr Walter P Bowers Room 501 No 1 Beacon St Boston

Minnesota Minneapolis Oct 2 5 Sec, Dr Thomas S McDavitt Lowry Bldg St Paul

Montana Helena, Oct 2 Sec, Dr William C Riddell Power Bldg Helena

New York Albany Buffalo, New York City and Syracuse Oct 2 5 Chief Examinations Division Harlan S Horner State Education Bldg Albany

Porto Rico San Juan Oct 2 Sec Dr M Quevedo Baez, San Juan

Rhode Island Providence Oct 4 5 Sec, Dr Byron O Richards State House Providence

Utah Salt Lake City Oct 1 2 Sec Dr G F Harding Templeton Bldg Salt Lake City

Candidates' Deficiencies at the Alabama Examination

A letter from the chairman of the Alabama State Board of Health states that at the recent examination conducted by that board the applicants displayed a surprising deficiency in hygiene and medical jurisprudence, indicating that sufficient attention was not being given to these branches in the medical schools A majority of the candidates were said also to be deficient in physical diagnosis and in diseases of the eye ear nose and throat These statements should be of special interest to teachers in medical schools

Alabama's Reciprocal Relations

A communication from Dr S W Welch, health officer of Alabama states that a plan has been adopted by which reciprocal relations are being established with other states Already such relations have been established with Iowa, Kentucky Louisiana Maryland, and Pennsylvania, and similar relations are pending with Arkansas, California, Colorado, Illinois Indiana Michigan, New Jersey New Mexico, North Carolina, Ohio, Tennessee and West Virginia

Louisiana's Reciprocal Relations

A letter just received from Dr E W Mahler, secretary pro tem of the Louisiana State Board of Medical Examiners, states that Louisiana now has reciprocal relations with the thirty-three following states Alabama, Arkansas, California, Colorado Delaware, District of Columbia, Georgia, Illinois Indiana Iowa Kansas Kentucky, Maine Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire New Jersey, New Mexico North Carolina North Dakota Ohio, Pennsylvania Utah Vermont, Virginia, West Virginia, Wisconsin and Wyoming

Endowing Motherhood.—The war is familiarizing the whole civilized world with the notion of endowing motherhood in one form or another and more is likely to be heard from it.—*Lancet* London

Book Notices

Dr. Lyman Spalding The Originator of the United States Pharmacopoeia, Co Laborer with Dr Nathan Smith in the Founding of the Dartmouth Medical School, and Its First Chemical Lecturer, President and Professor of Anatomy and Surgery of the College of Physicians and Surgeons of the Western District, at Fairfield, N Y By His Grandson, Dr James Alfred Spalding Cloth Price, $3 50 postpaid Pp 380, with illustrations Boston W M Leonard, 1916

This interesting biography is based on the papers that Lyman Spalding left behind him, which fortunately fell into the hands of a grandson who fully appreciated their unusual value The book consists largely of letters from physicians to Dr Spalding, only a few copies of his own letters having been found Interwoven with these letters are accurate accounts and interesting anecdotes of their writers and many of the chief persons mentioned in the letters, so that mention is made of a large number of the leading physicians in this country in the time of Dr Spalding The reader follows with growing interest the career of a distinguished but hitherto little known man in medicine For in addition to the important work indicated in the title of the book, Lyman Spalding was really the first to test publicly the efficacy of vaccination as a preventive of smallpox, which he did in the smallpox hospital at Portsmouth Harbor in 1801, where four recently vaccinated persons and Dr Spalding lived on intimate terms with two smallpox patients and were inoculated with the actual smallpox virus, all coming off scot-free of the smallpox, in 1800 he began to tabulate all deaths in Portsmouth, and these bills of mortality attracted much attention, Benjamin Rush writing that they were "an ingenious improvement of that species of publication and calculated to add to the certainty of our knowledge upon several medical subjects" natomic preparations, especially of the lymphatics, which are id to be unique, made Dr Spalding's name well known to merican anatomists Beginning in 1812, Dr Spalding lectured each winter for six years at the Fairfield school, then the only medical school outside of Boston, New York and Philadelphia, and was president of the college part of the time He died from injury at the early age of 46, but in his short life he accomplished much for American medicine, in the history of which his name will live as the originator of the United States Pharmacopeia By reason of the importance of his career and of the manner in which it is presented, his biography is a most valuable addition to our medicohistorical literature

Building Human Intelligence By Dr Arnold Lorand, Physician to the Baths, Carlsbad Translated from the German by Philipp Fischelis, M D, Acting Associate Professor of Histology and Embryology University of Pennsylvania Cloth Price, $3 net Pp 541 Philadelphia F A Davis Company, 1917

This volume is based on hygienic and physiologic considerations The book is made interesting and readable, because of numerous anecdotes taken from personal experience and historical record The book is not a scientific work, but is rather the expressions of the practical psychology of a physician The author, realizing that the subject is somewhat beyond the usual character, says "A severe critic may have ample opportunity to ruffle my feathers If he will admit, however, in his just criticism that there is at least a single good thought in this work which may further the common welfare, I shall consider the goal for which I have been striving in the preparation of this work as having been attained" As there are many good thoughts in the work, the reviewer must grant that the author has attained his goal

Standard Methods for the Examination of Water and Sewage Revised by Committees of the American Public Health Association, American Chemical Society, and Referees of the Association of Official Agricultural Chemists Third Edition Cloth Price, $1 25 Pp 115 Boston American Public Health Association, 1917

This is the culmination of the work of various committees under the supervision of the American Public Health Association in compiling up-to-date analytic methods for public health laboratory workers The first part of the book is devoted to a detailed description for the chemical examinations of water and sewage The completeness of the technical operations is a distinct advantage, the observations of various chemists will lend themselves to more critical and reliable comparisons It is regrettable that the reasons for certain procedures are not more fully developed The bacteriologic section is treated in much the same manner as the chemical To all who are interested in the active investigation of water and sanitation, this book is commended as a "standard"

Social Medicine, Medical Economics and Miscellany

PSYCHIATRIC PROBLEMS AT LARGE*

AARON J ROSANOFF, M D
Kings Park, N Y

July 1, 1916, an enumeration of cases of mental disorder, both in and out of institutions, was undertaken in Nassau County, N Y A method was applied which was calculated to bring to light more especially cases of sociological significance These cases were, however, also studied from the medical point of view, so that eventually the material that had been gathered came to be classified in a twofold manner, according to a medical and a sociological classification

The investigation was conducted essentially in two stages The first stage consisted in securing leads to cases of probable mental abnormality, and the second in efforts to secure data concerning these cases sufficient to establish the abnormality, if it indeed was there, and to determine at least roughly its nature

The main sources of leads were as follows (1) lists furnished by the State Department of Charities, Eugenics Record Office, and Nassau County Association and other charitable organizations in the county, (2) the records of the overseers of the poor, (3) the records of the justices of the peace, police justices, and the district attorney, (4) the records in the county clerk's office of divorce and separation proceedings, (5) lists furnished by neighborhood workers, district nurses, truant officers, clergymen, old residents and other persons, (6) lists furnished by practicing physicians, (7) cases examined in state hospitals, public and private charitable institutions and in penal and correctional institutions, and (8) cases found in the elementary public schools

The near relatives of all "abnormal" persons living in the county were also investigated, and among them were found many whom we classified as mentally abnormal and to whom no leads were available from any of the sources mentioned A total of 1,592 "abnormal" persons was thus discovered in the county (exclusive of the cases found in the schools)

The total population being 115,827, the percentage of mentally abnormal persons in the county is found, by calculation, to be 1 37

Clinically the "abnormal" cases may be divided into four main groups

Insane	394
Epileptic	72
Feebleminded	634
Constitutionally inferior (inebriates, criminals, prostitutes, chronic dependents, etc.)	492

Not all these cases would require institutional treatment, but, according to the judgment of the medical officers of the survey, only 59 4 per cent Moreover, for many of the cases institutional treatment is already available, this is true especially of the insane and, to some extent, of the epileptic and the feebleminded

The survey has shown clearly that for the bulk of cases presenting psychiatric problems, the benefit of psychiatric study, judgment and treatment is not available

The fact is that the psychiatric basis of many cases of retardation in school, criminal tendency inebriety, drug habits and pauperism is hardly recognized even by medical practitioners It is, I think owing to this circumstance that mental clinics especially in rural or semirural places have heretofore failed to realize their full possibilities for service

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* Read before the American Medico Psychological Association May 29, 1917, also before the National Conference of Charities and Corrections June 12, 1917

The usual practice has been merely to organize a clinic and to open its doors to those who would, of their own accord, seek psychiatric advice or who would be sent or brought to the clinic for that purpose by their relatives or physicians At some of the clinics attendance has seemingly depended on advertisement falling off rapidly when advertisement was not kept up

The great problem evidently is to bring to the clinic cases which are of a psychiatric nature but not necessarily recognized as such by general practitioners, by laymen or by the patients themselves

Perhaps the best plan would be to organize a system of cooperation between the mental clinic and public authorities who have to deal with problems of social maladjustment such as often arise on a psychiatric basis (1) school principals having to deal with retardation truancy and unruliness, (2) justices of the peace police justices district attorneys and county judges having to deal with crime, inebriety vagrancy prostitution etc , (3) overseers of the poor, county superintendents of the poor and charitable organizations having to deal with dependency

In large urban centers it is perhaps not so important—though none the less desirable and advantageous—for an outpatient mental clinic to establish such connections the functions of the mental clinic are vicariously performed for the police the courts the schools and charitable organizations by neurologic clinics by 'clearing houses' for mental defectives, or by psychiatrists especially employed for such purposes In rural or semirural places no such assistance is as a rule available and when made available through the establishment of a mental clinic is not apt to be made use of to any great extent in a spontaneous way as the communities have not yet been educated to the point of discerning a psychiatric problem as such when it exists

The experience of the Nassau County survey has shown in a most striking way that large opportunities for psychiatric service would develop if the medical staffs of the mental clinics would undertake regular inspections of schools almshouses charitable homes jails penitentiaries prisons, etc

It has been customary heretofore to hold outpatient mental clinics at stated regular times either fortnightly or weekly, or perhaps somewhat more often This does not afford an opportunity for psychiatric consultations which may be sought in the intervals In order to provide such an opportunity each state hospital conducting an outpatient mental clinic should arrange for the psychiatric examinations of persons brought to it for that purpose at any time, and the law should permit the detention of such persons for observation for a period of ten days on an order of a magistrate

As it is not always convenient or even possible to bring patients either to the outpatient clinic or to the state hospital, some provision would seem necessary whereby a state hospital would be ready at any time to send a member of its medical staff to any part of the hospital district for psychiatric consultation on the request of a proper authority

It is not to be assumed that even such an organization of outpatient mental clinics as is here advocated would provide fully such psychiatric service as the communities need it would merely place the state hospital in closer touch with psychiatric problems arising at large in its district, and make unrestricted psychiatric consultation and advice available for the community In order to make it possible for the state hospitals to render remedial service in full measure, as needed they must somehow be empowered, in the first place, to furnish, through social service, relief from unfavorable environmental conditions financial difficulties unemployment, etc , which often appear as the direct causes of the social maladjustment, and, in the second place to provide early institutional treatment for the cases in which it seems necessary

The first of these requirements will perhaps be fulfilled through such cooperation on the part of the poor law officials and charitable organizations as previously described

The second could be met only by increase of institutional capacity Today, even in the most highly organized states, the crying need in the sphere of mental hygiene, is for increase of institutional capacity The state of New York, for instance—one of the foremost in the Union in this respect—had, in 1910, 396 3 persons in institutions for the insane, epileptic, feebleminded etc , per hundred thousand of its general population The material brought to light in the course of the Nassau County survey shows that, by a most conservative judgment the state could double its institutional provision without the slightest danger of such increased provision proving to be in excess of actual needs

I wish to refer to a valuable by-product that would develop in the course of the growth of the outpatient clinic if organized according to the plan here advocated, namely, a register of cases of mental disorder, if not complete, at least including all those cases which are of sufficient sociological import to have become the concern of public authorities The records accumulated by the clinic would gradually develop into such a register

Judging from the results of the Nassau County survey, it may be anticipated that after several years' development such a register would show that the bulk of all crime, vice, dependency and other social maladjustments in a given community is attributable to a comparatively small fraction of its population It stands to reason that problems presented by such evils could be much more successfully attacked with the aid of material that would be available in such a register than without it

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Dispensary Control of Tuberculosis

The ninth annual report of the association of tuberculosis clinics of the city of New York says that the work has suffered somewhat during the year covered by the report on account of the diversion of some of the effort of the field nursing service originally designed for tuberculosis work alone, to include the sanitary supervision of various other infectious diseases Results inimical to the standards set for tuberculosis work have followed Enthusiasm for it has been dissipated it is said, as new problems, more interesting because of their newness have been taken up In some instances the use of the tuberculosis machinery has been diverted to meet these needs It is said furthermore, that qualitative ideals also have succumbed to quantitative demands, with the inevitable lessening in the efficiency of the tuberculosis follow-up work. There was a decrease in clinic activity during the year covered by the report, but this is construed to indicate that the ten-year campaign against tuberculosis has begun to show definite results, and the actual need for clinic service has grown less The vital statistics for 1916 show that the tuberculosis death rate has been reduced from 1.61 per cent to 1 50 per cent , while the drop in the general death rate has been from 13 93 to 13.89 per cent., showing the reduction in the tuberculosis death rate to be 0 7 per cent. greater than the general rate There were 419 fewer deaths from pulmonary tuberculosis, and the new cases reported during the year were 2,844 less than during the preceding year

It is said that hospitals for the tuberculous reported that there were a number of vacant beds and that preventoriums were complaining of difficulty in getting children On the other side of the picture, however, it is found that while the death rate has declined since 1906 the number of new cases reported has continued to overbalance the number of deaths plus the cases removed from the active register for various reasons, such as "arrested" or "apparently cured," permanently left the city, or "not found" for two years, so that since 1913 there has been an increase of approximately 6,000 registered tuberculosis cases

It is said that it will take anywhere from ten to twenty years before curves may be plotted that will show results from preventive work for tuberculosis comparable with those so clearly and easily shown in connection with the preventive and supervisory work done for various acute infectious diseases or in infant welfare work.

Medicolegal

Physician Acting in Professional Capacity

(Cincinnati H & D R Co vs Gross (Ind), 114 N E R 962)

The Supreme Court of Indiana, in affirming a judgment in favor of plaintiff Gross for damages for personal injuries sustained by him while in the employ of the defendant railroad company, says that a surgeon in the employ of the company attended the plaintiff after he was taken to a hospital after the accident On the first or second evening after the accident the surgeon made an arrangement with two representatives of the company to visit and interview the plaintiff in the waiting room of the hospital The plaintiff was wheeled into the waiting room and there questioned by the two representatives concerning the wreck The plaintiff was not previously advised as to the purpose of taking him to the waiting room The foregoing, among other things, appeared from evidence introduced on behalf of the plaintiff The surgeon testified that on the occasion of the interview he did not attend the plaintiff as a physician, but went to the hospital for two reasons, one to make sure that the two representatives were allowed to see the plaintiff, and the other to see that he was given proper treatment in his removal to and from the waiting room, that the witness did not participate in the conversation with the two representatives of the company The surgeon was asked to state what the plaintiff said, but this was objected to and the objection was sustained. It was contended that this ruling was erroneous on the ground that at the time of the interview in question the surgeon was not acting in his professional capacity, but the supreme court holds that the offered evidence was properly excluded While it was true that in his preliminary examination the witness stated that he was not acting in his professional capacity, it was within the province of the court to determine, from the entire examination of the witness and from other relevant evidence, whether the relation of physician and patient existed at the time, and its decision on the question was, in this case, fairly supported by the evidence Moreover, the witness, both immediately before and after the interview, at least, represented each of the parties whose interests here conflicted Under such circumstances it was peculiarly within the province of the trial court, in passing on the admissibility of evidence, to determine what weight should be given to preliminary statements of the witness The Indiana statute provides that physicians shall not be competent witnesses "as to matter communicated to them, as such, by patients, in the course of their professional business, or advice given in such cases" This enactment has consistently been construed by this court as covering a broader field than is indicated by the literal meaning of the words employed, and, so construed, it renders the physician incompetent to disclose information acquired by him while attending a patient in a professional capacity This includes all that he sees or observes, while so acting, as to matters communicated by the patient The rule, which is a beneficent one, is not to be lightly broken down

Operating on Child at Request of Others Than Parents

(Rishworth vs Moss et al (Tex), 191 S W R 843)

The Court of Civil Appeals of Texas, on the second appearance before it of this case, reverses the second judgment rendered in favor of the defendants, remands the cause, and overrules a motion for a rehearing The court says that the plaintiff was suing the defendants for damages alleged to have been sustained on account of the death of his daughter, aged 11, which occurred within a few minutes after an operation had been performed on her for the removal of adenoids and tonsils The plaintiff contended that the operation was performed without the request or the consent, express or implied, of himself and his wife The child had been taken by two adult sisters for a week or ten days' visit with them in a city about 60 miles from home, in which city they had been in training at a hospital with a view to becoming professional nurses These sisters took the child to Dr Moss' office to have the operation performed This court on the first appeal held that a physician is liable for operating on a person unless he obtains the consent of such person, if competent to give consent, and, if not, of some one who, under the circumstances, would be legally authorized to give the consent, and that, in the case of a child of tender years, consent must be obtained from the parent or guardian In this case, Dr Moss relied altogether, as was shown by his own testimony, on permission given him by an agent or agents At the time the daughters came to him he did not know whether they were even legally in possession of the child, all he knew was that they led him to believe they were legally in possession of her, and that they had authority to have the operation performed They did not say that they had such authority, but they used language from which such meaning would naturally be deduced In order, however, to determine whether agency existed, the court must look, not to the acts and declarations of the persons assuming to be an agent, but to the transactions between such person and the persons sought to be charged as principals The only evidence concerning such matters was furnished by the parents They testified that the child was permitted to accompany her sisters to the city to pay them a visit for a week or ten days, and with this purpose in view, and no other, she was placed in the custody of her sisters They were constituted the agents of the parents, but their authority was very limited It cannot be contended that such an agency would carry with it the implied authority to take the child to a surgeon and have an operation performed on her, there being no emergency Such an agency would carry the implied authority to employ a physician to attend the child if it should become ill and require medical aid, and if an emergency arose which required that an immediate operation be performed in order to save the life of the child, the agent would undoubtedly have authority to employ a surgeon to perform the operation Where there has been no change in the child's health after its custody was confided to its sisters for a week, it appears to the court that the sisters would not have any authority to employ physicians to treat the child and endeavor to improve its health, much less to employ a surgeon to perform such an operation as is involved in the removal of the tonsils and adenoids and requires the use of a general anesthetic There was nothing in the relation created by giving the custody of the child to its sisters for a short visit which would imply the authority exercised by them The fact that parents are not present when an operation is to be performed on a little child is a circumstance sufficient to arouse inquiry as to whether they know the operation is to be performed All of the testimony of expert witnesses with regard to the advisability of performing the operation at the time it was done should have been excluded, there being no evidence of any express or implied or apparent authority The condition of the child's health, and the advisability of removing tonsils and adenoids could not justify want of authority, no emergency being alleged and proved Had the child survived the anesthetic and operation, it would have had a cause of action

Law Making No Provision for Systems Not Taught in Any School—"Neuzopath"—Membership of State Board of Health

(State vs Heffernan (R I), 100 Atl R 55)

The Supreme Court of Rhode Island, to which this case was certified for the determination of constitutional questions raised by the defendant, holds that none of the objections properly presented by him to the validity of Chapter 193 of the General Laws, and especially Section 3 thereof, with reference to the practice of medicine in that state, were well founded The defendant was charged, among other things with holding himself out to the public as a practitioner of medicine by appending to his name the title of "Neuzopathic Physician," also by appending to his name the title of "Neuzopath," and with practicing medicine and surgery for compensation, without being legally authorized so to do The court does not find that the provision of Section 3 of Chapter 193, which requires "satisfactory evidence of graduation from a medical school in good standing" before a candidate can be examined or be permitted to practice medicine, is in conflict with either the state or the federal constitution Nor the court holds is the law invalid because it makes no provision for persons who desire to practice a system of medicine which is not taught in any school

The court says that while undoubtedly in stages of its history the practice of medicine has been to some extent empiric it is safe to say as a matter of common knowledge that a vast amount of accurate information has now been accumulated as to the structure of the human body as to the functions of its various parts as to the diseases to which it is subject or exposed and as to the discovery and use of remedies for the prevention and cure of disease and that this information is included in the subjects of study in medical schools It is also a matter of common knowledge that by increased facilities for research and experiment in laboratories by men scientifically trained within the last few years great advances have been made in a more intelligent and successful practice of medicine and surgery It is of these and kindred subjects that the person seeking to practice medicine is required by the law to have knowledge While doubtless there is a difference in the different schools of medicine as to the remedial measures to be employed in the treatment of disease nevertheless an accurate knowledge of the human body of the functions of its organs and parts and of the diseases to which it is subject must furnish the foundation of medical practice in all schools of medicine. The defendant did not seek an examination in these matters but said he had originated a system of medicine or therapeutics not taught in any school of medicine in other words that he had originated a new method for the discovery prevention and treatment of disease It might perhaps be inferred that he was the only practitioner under the system thus originated and that there was no one qualified to examine him in it There was no suggestion that the defendant s system of medicine had ever been explained or submitted for examination to any one or had ever been committed to print so that it might be examined or studied by others A system thus unexplained with apparently no followers is scarcely worthy to be dignified by calling it a school of medicine In these circumstances while recognizing that progress in the discovery of the causes of disease and of its prevention is probably now being made the court thinks it is outside of all reasonable probability that the defendant has discovered such a large field of medical knowledge, hitherto unexplored by any student, investigator or practitioner of medicine as to permit him to originate a new system of medicine or therapeutics In the court's judgment it is so utterly improbable that a legislative provision excluding one from practicing such a system on his fellow men must be held to be in the interest of the general welfare and a reasonable and proper exercise of legislative power

The court also holds constitutional the requirement of Chapter 115 that a majority of the state board of health must be physicians who are members of some medical society incorporated by the state

Society Proceedings

COMING MEETINGS

Am Assn Obstetricians and Gynecologists Newark N J Sept. 17 19
American Association of Railway Surgeons Chicago Oct. 17 19
American Electro-Therapeutic Association Atlantic City Sept. 11 13
American Roentgen Ray Society Pittsburgh Sept 19 22
Delaware State Medical Society Middletown Oct. 8 9
Colorado State Medical Society Colorado Springs Sept 25 27
Indiana State Medical Association Evansville Sept. 26-28
Kentucky State Medical Association Louisville Oct. 16-18
Medical Association of the Southwest Kansas City Oct. 15 17
Michigan State Medical Society Battle Creek Sept. 4 6
Minnesota State Medical Association St Paul Oct. 10-20
Mississippi Valley Medical Association Toledo O Oct. 9 11
Missouri Valley Medical Society Lincoln, Neb Sept. 20-21
Nevada State Medical Association Reno Oct 18 19
New Mexico Medical Society Las Cruces Oct. 4-6
Pennsylvania State Medical Society Pittsburgh Sept. 24-27
Utah State Medical Association Salt Lake City Sept. 12 13
Vermont State Medical Society Barre Oct. 11 12
Virginia State Medical Society Roanoke Oct 23 26
West Virginia State Medical Association Fairmont Oct. 2-4
Wisconsin State Medical Society Milwaukee Oct. 3 5

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Obstetrics and Diseases of Women and Children

August LXXVI No 2

1 *Value of Avoidance of Shock and Trauma in Treatment of Eclampsia E B Cragin, New York City —p 211
2 *Uteroscopy Versus Transperitoneal Hysterotomy A Heineberg, Philadelphia —p 216
3 Infectious Abortion of Cattle as Complication of Pregnancy of Women Report of Cases H P De Forest New York City —p 221
4 Elizabeth Steel Magee Hospital of Pittsburgh, C E Ziegler Pittsburgh —p 255
5 Roentgen Therapy Successful in Uterine Fibroid Without Affecting Ovaries Report of Case G E Pfahler and J A McGlinn Philadelphia —p 262
6 Inversion of Uterus Operation by Spinelli Method Recovery of Patient G F Shoemaker Philadelphia —p 268
7 Hysterectomy—Operation of Choice to Terminate Pregnancy, when Subsequent Pregnancy is to Be Avoided E Marvel Atlantic City N J —p 271
8 True Value of Certain Pelvic Measurements J L Huntington, Boston —p 277
9 Cervical Repair Following Confinement T Coffey, Los Angeles —p 282
10 Pregnancy and Labor Following Operative Procedures on Genital Tract J Ronsheim Brooklyn —p 289
11 Pyelitis During Pregnancy F E Leavitt St Paul —p 297
12 New Method of Treating Pernicious Vomiting of Pregnancy by Blood Transfusion A Y P Garnett Washington D C —p 303

1 Abstracted in The Journal July 14 1917, p 144

2 **Uteroscopy vs Transperitoneal Hysterotomy** —The advantages of uteroscopy over transperitoneal hysterotomy are stated by Heineberg as follows 1 It affords a perfect view of the interior of the uterus without subjecting the patient to the dangers attendant on invasion of the peritoneal cavity 2 It may be performed quickly under nitrous oxid oxygen anesthesia 3 The patient experiences no more pain or discomfort than after an ordinary dilatation and curettage 4 It affords a clear view of the cervical canal as well as of the uterine cavity 5 The dilated cervical canal insures good postoperative drainage from the cavity of the uterus 6 It will demonstrate that a very large proportion of cases of obscure intra-uterine disease are nonmalignant and may be efficiently treated by the curet or placental forceps and thus avoid a maximum of cure for a minimum of disease.

5 **Roentgen Therapy in Uterine Fibroid** —The authors report what they believe to be the first case in which a gynecologist and roentgenologist have definitely planned, and successfully carried out Roentgen treatment for the reduction or dissipation of a fibroid of the uterus, with the protection of the ovaries, and proof of their success by subsequent pregnancy They conclude that the results in this case would strongly suggest that in dealing with a patient otherwise healthy in the childbearing period, in which the uterus is involved by fibroid, the gynecologist is not justified in the removal of the uterus without first making the attempt at treatment with the Roentgen rays by directing the rays against the fibroid and shielding the ovaries The success of the treatment in a case like this demands first, a careful and thorough investigation by the gynecologist as to size and position of the fibroid Second he should report, so far as possible, on the condition and position of the ovaries, and third the roentgenologist should be most careful in his technic as to the direction of rays and as to the protection of the skin of the patient and in shielding the ovarian region for if operation is needed later or if the roentgentherapy is not successful in removing the fibroid, the skin must not become damaged

12 **Blood Transfusion in Pernicious Vomiting of Pregnancy** —In two cases reported by Garnett a donor about ten days postpartum was selected as it was thought advantageous to have a donor who had recently passed through pregnancy, but in whom all uterine contractions had then ceased in the hope that her blood might contain an antibody, antiferment or whatever it may be that would neutralize the toxic agent

in the recipient, this neutralizing substance having been produced in the donor during her pregnancy at which time the toxic substance or substances had apparently been overcome or neutralized by her

American Journal of Orthopedic Surgery, Boston

August, XV No 8

13 *Localization of Growing Point in Epiphyseal Cartilage Plate of Bones S L Haas, San Francisco —p 563
14 *Bone and Joint Infections Treated by Carrel Technic G W Hawley, Bridgeport, Conn —p 586
15 *New Supra Articular Subperiosteal Approach to Hip Joint M N Smith Petersen, Boston —p 592
16 Artificial Limbs for Sailors and Soldiers E M Little, London —p 596
17 Case of Paralytic Calcaneo Cavus with Extreme Deformity Treated by Jones' Method of Tarsectomy in Two Stages A P C Ashhurst, Philadelphia —p 602

13 **Localization of Growing Point in Epiphyseal Cartilage Plate of Bones** —The experiments reported by Haas show that an incision through a growing bone at the junction of the metaphysis with the epiphysis always causes a disturbance in growth A separation in the natural line of cleavage between the epiphysis and metaphysis, after incising the periosteum, causes some loss in length growth It is possible in exceptional cases, in which a minimal amount of injury is produced, that there will be no hindrance to growth The excision of the metaphysis causes a very slight disturbance in growth The excision of the epiphyseal cartilage plate causes practically a complete cessation of active longitudinal growth The most active and important elements necessary for longitudinal growths are located in the columns of cartilage of the epiphyseal cartilage plate A limited property of producing length growth is possessed by the cartilage adjacent to the columns of cartilage

14 **Bone and Joint Infections Treated by Carrel Technic** — Forty cases of acute and chronic osteomyelitis, compound fractures and joint tuberculosis have been treated by Hawley by this method, and all have responded remarkably well, with the exception of two cases of tuberculosis In these the early progress was excellent, but the disease process extended and the treatment was abandoned Hawley says that this is the first time in his experience that it has been possible definitely to sterilize suppurating infections of the bones and joints and see them heal without any evidence of pus and without sinus formation This has occurred, not in one instance only, but in all the cases not still under treatment At the same time two very interesting phenomena have been observed which are entirely new—the growth of granulation tissue from the bone itself and a peculiar form sequestration

15 **New Supra-Articular Subperiosteal Approach to Hip Joint** —Petersen advises that the usual anterior incision be extended backward from the anterior superior spine along the crest of the ilium, and the flap thus formed reflected downward by subperiosteal dissection, giving an excellent exposure of the superior portion of the capsule and of the acetabulum

Bulletin Johns Hopkins Hospital, Baltimore

August, XXVIII No 318

18 *Hemolytic Substances in Heated Milk and in Milk Cultures of Bacterium Welchii W W Ford and J H Lawrence, Baltimore —p 245
19 Venous Congestion in Its Relation to Necroses of Liver H Oertel, Montreal —p 249
20 *Degeneration of Leukocytes in Urine as Diagnostic Aid in Tuberculosis of Urinary Tract in Women H M N Wynne, Baltimore —p 251
21 Ethics of Practice of Medicine from Jewish Point of View H Friedenwald —p 256
22 Paleopathology A C Klebs, Washington, D C —p 261

18 **Hemolytic Substances in Heated Milk and in Milk Cultures of Bacterium Welchii** —It is shown by Ford and Lawrence that market milk heated to 85 C for fifteen to twenty minutes and allowed to decompose by incubation at 22 C or 37 C for twenty-four to forty-eight hours contains a hemolysin of moderate strength This hemolysin is independent of the acids in the milk, occurring in neutralized specimens, is thermolabile, being destroyed at temperatures between 55 C and 60 C, is precipitable by ethyl alcohol and can be digested by pepsin and pancreatin It is to be classed with the bacterial hemolysin and is in all probability to be attributed to the presence of *Bacterium welchii* in the market milk. Pure milk cultures of *B welchii* contain a similar hemolysin which is, however, usually slightly more powerful This also is independent of the acids in the milk, is thermolabile, being destroyed at temperatures between 55 C. and 60 C., is precipitable by ethyl alcohol and can be digested by pepsin and pancreatin On the basis of the work thus far completed they believe that this hemolysin is a true bacterial hemolysin It is especially to be differentiated from the hemolysin of both lactic acid and butyric acid, which are thermostabile The role which these acids play in the hemolysis seen in cultures of *B welchii* is, the authors believe, secondary to that of the true bacterial hemolysin secreted by the organism

20 **Degeneration of Leukocytes in Urine Diagnostic Aid in Tuberculosis of Urinary Tract** —In eleven cases of renal tuberculosis cited by Wynne, the tubercle bacillus was demonstrated in ten The tables contained in the article include eleven cases of renal tuberculosis, for which nephrectomy was performed, fifteen cases of nontuberculous pyuria in which the possibility of tuberculosis was definitely eliminated by operation or necropsy, and twenty cases in which there was no operation but the clinical picture and results of treatment rule out tuberculosis Wynne concludes that degenerated leukocytes in the urine are not pathognomonic of tuberculosis of the urinary tract, but a marked degeneration is strongly suggestive of this disease The absence of degeneration of leukocytes does not eliminate tuberculosis The cytologic study of the urine cannot replace the demonstration of tubercle bacilli or animal inoculation as a means of diagnosis, at best it offers presumptive evidence

California State Journal of Medicine, San Francisco

August XV No 8

23 Some Heart Problems Suggesting Necessity for Closer Alliance Between Physiologist, Biochemist and Clinician W W Kerr, San Francisco —p 283
24 Syphilitic Arthritis L W Ely, San Francisco —p 288
25 Tonsils as Focus of Infection J M Brown, Los Angeles —p 290
26 Focal Infection Intestinal Involvement F F Gundrum, Sacramento —p 293
27 High Calory Feeding in Typhoid in Children H H Yerington, San Francisco —p 294
28 Clinical Observations of One Hundred Cases of Artificial Pneumothorax R C Matson, Portland, Ore —p 297
29 Tuberculosis in Childhood with Unusual Manifestations. L Porter, San Francisco —p 303
30 Differential Diagnosis of Abdominal Tuberculosis G E Ebright, San Francisco —p 306
31 Toxic Gastric Hemorrhage E L Crispin, Rochester, Minn —p 308
32 Hypophyseal Symptomatology, Review C. W Rand, Los Angeles —p 312
33 Vaccine in Typhoid H R Parker, Dunsmuir, Cal —p 316
34 General Practitioner and Tuberculous Patient R A Peers, Colfax —p 318
35 Medical Inspection of Prisoners at San Quentin, Report of Case of Tinea Versicolor L. L Stanley, San Quentin —p 323
36 Case of Hemoglobinuria N E Williamson, San Francisco —p 324

Journal of Bacteriology, Baltimore

July, II, No 4

37 *Importance of Uniform Culture Media in Bacteriologic Examination of Disinfectants J H Wright, New York —p 315
38 Nomenclature and Classification of Bacteria R E Buchanan, Ames, Iowa —p 347
39 Effect of Hydrogen Ion Concentration on Production of Precipitates in Solution of Peptone and Its Relation to Nutritive Value of Media I J Kligler, New York —p 351
40 *Types of Organisms Isolated from Water After Treatment with Calcium Hypochlorite M A Smeeton, New York —p 355
41 *Morphology of Strain of B Diphtheriae P G Heinemann, Chicago —p 361
42 Preparation of Hyphomycetes for Microscopical Examination —p 365
43 Blastocystis Hominis Its Characteristics and Its Prevalence in Intestinal Content and Feces in South Carolina K. M Lynch, Charleston —p 369
44 Characteristics of Coli Like Microorganisms from Soil B R Johnson and M Levine, Ames, Iowa —p 379
45 Effect of Sterilization on Sugars in Culture Media C S Mudge, Providence, R I —p 403
46 Presence of B Coli and B Welchii Groups in Intestinal Tract of Fish (Stenomus Chrysops) W W Browne Woods Hole, Mass —p 417

47 Nitrogen Assimilating Organisms in Manure H L Fulmer and L B Fred Madison, Wis—p 423
48 New Differential Plating Methods for B Bifidus (Tissier) and B Acidophilus (Moro) J C Torrey New York—p 435
49 Trichomoniasis of Chicks New and Highly Fatal Disease J Weinzirl—p 441
50 Study of Diphtheroid Group of Organisms with Special Reference to Its Relation to Streptococci R E Mellon Boston—p 447

37 **Importance of Uniform Culture Media in Bacteriologic Examination of Disinfectants.**—The essential points brought out by Wright may be summed up as follows Variations in culture mediums are the cause of the majority of the discrepancies obtained in the bacteriologic examination of disinfectants There is no indication that these variations in culture mediums are in any way due to lack of uniformity in Witte's peptone Liebig's Extract of Meat however, should be regarded with suspicion

40 **Organisms Isolated from Water Treated with Calcium Hypochlorite.**—The organisms found by Smeeton were apparently of the common saprophytic type usually found in air and water No intestinal forms appeared to survive the treatment in the amount examined It would appear, therefore that available chlorin in the proportion of 1 part to 2,000,000 is sufficient to purify surface water obtained under conditions similar to that of the Croton supply

41 **Morphology of Strain of B Diphtheriae.**—Heinemann's observations indicate the existence of a close morphologic relationship between the members of the *B diphtheriae* group An exhaustive study of this relationship might lead to important scientific results and might be of practical value for the detection of diphtheria carriers inasmuch as abnormal forms which at present lead to negative diagnoses might when properly interpreted show the presence of virulent diphtheria bacilli in unsuspected cases

50 **Relation of Diphtheroid Organisms to Streptococci.**—It would appear from Mellon's work that the sum total of evidence shows that the diphtheroid group is one of great diversity and lability and that it is more or less related to several other groups of organisms Prominent among these is the acid-fast group represented by *B tuberculosis*, the streptococcus group, represented by some of its nonhemolytic types, *B proteus* and the enterococcus

Kentucky Medical Journal, Bowling Green

August XV No 8

51 Accessory Sinus Disease C C Hall Louisville—p 363
52 Genuine Physician H C Clark Falmouth—p 366
53 Vulvovaginitis A L Beckett Butler—p 367
54 Menorrhagia and Metrorrhagia Etiology and Pathology T A Pease Kirbyton—p 368
55 Diabetes Mellitus W L Mosby Bardwell—p 369
56 Empyema in Childhood Its Diagnosis and Treatment. P C Layne Ashland—p 370
57 Some Conditions of Liver Requiring Surgical Intervention P H Stewart, Paducah—p 373
58 Few Practical Points on Diagnosis of Renal Lesions E W Jackson Paducah—p 375
59 Tuberculosis of Bones and Joints with Treatment Including Use of Tuberculin V Blythe Paducah—p 378
60 General Practitioner His Patients and Specialist. W J Shacklette Glendale—p 380
61 One Hundred and Thirty One Cases of Measles M A. Moore, McVeigh—p 381
62 Eclampsia Z A Thompson Pikeville—p 383
63 Rural Physician and Diagnostic Laboratory C K. Beck, Louisville.—p 384
64 Fractures A. C Henthorn Garrison.—p 386
65 Infectious Meningitis Study of Twenty Seven Cases in 586 Necropsies S Graves Louisville—p 387
66 Some Important Facts About Malaria C C Bass New Orleans—p 393
67 Colles Fracture S Lambert, Owensboro—p 396
68 Enterocolitis Sporadic Dysentery R T Hocker Arlington—p 398

Medical Record, New York

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69 Diagnosis and Treatment of Abortion. H N Vineberg New York.—p 177
70 Infant Feeding M S Reuben New York.—p 181
71 Significance of Abdominal Pain M Behrend, Philadelphia.—p 188
72 Bronchial Asthma M F Morris, Jr, Chelsea, Mass.—p 190
73 Course, Symptoms and Treatment of Proctitis. A. A. Landsman, New York.—p 193

Modern Hospital, St. Louis

August IX, No 2

74 Rockefeller Institute War Demonstration Hospital C Butler, New York—p 73
75 What State of Illinois is Doing for Its Blind C. E Comstock, Chicago—p 80
76 Conversion of Yachts into Ambulance Boats W E Eaton—p 81
77 Emergency Hospital Construction for U S Navy W C. Braisted—p 87
78 Hospital Organization under War Department J A Hornsby—p 88
79 Scarcity of Surgical Instruments and Hospital Equipment V Mueller Chicago—p 90
80 Artist's Work in War Orthopedics F B Lester, Chicago—p 92
81 Grape Juice, Lime Juice and Loganberry Juice J P Street New Haven Conn—p 96
82 Sanatorium Blanket Problem H L Rockwood, Warrensville, O—p 98
83 Maryland State Hospital Train D Z Dunott, Baltimore—p 101
84 Standardization of Hospitals—University or Teaching Hospital J A Hornsby Chicago and others—p 103
85 Columbia War Hospital F C Wood, New York.—p 112

New York Medical Journal

August 4 CVI No 5

86 Primitive Medicine Man's Virtues. J Wright, Pleasantville—p 197
87 Bariumized Test Meal with Combined Fluoroscopic and Chemical Study as Means of Rapid Preliminary Stomach Diagnosis G W McCaskey Fort Wayne, Ind—p 202
88 Study of Drug Action T J Mays, Philadelphia—p 204
89 Campaign for Pure Food H W Wiley Washington D C—p 208
90 Control of Nose and Throat Hemorrhage. L. A Coffin New York—p 211
91 Ambulatory Treatment of Peptic Ulcers. H A Rafsky New York—p 212
92 Serum Therapy as Applied to Pneumococcic Infections of Eye L. Lehrfield, Philadelphia—p 214
93 Femina Adomestica D Waterson El Paso Tex—p 215
94 Treatment of Excessive Menstruation in Unmarried S Axilbund Philadelphia—p 217
95 Lobar Pneumonia Problem in Army H J Nichols El Paso, Tex—p 219
96 Use of Inexpensive Drugs in Practice. L. T de M Sajous, Philadelphia—p 232

Oklahoma State Medical Association Journal, Muskogee

August X No 8

97 Intravenous Medication W F Dutton, Tulsa—p 315
98 Prevention of Malaria J W Duke Guthrie—p 321
99 Injuries of Head J W Riley, Oklahoma City—p 328
100 Accidental Brain Injuries A D Young, Oklahoma City—p 333
101 Fractures of Base of Skull C. von Wedel Jr Oklahoma City—p 335
102 Application of Principle of Bone Graft to Unretainable Recent Fractures. M E Stout, Oklahoma City—p 337

Ophthalmic Record, Chicago

August XXVI No 8

103 Present Status of Corneal Transplantation and Some Experimental Data S Walker Jr, Chicago—p 383
104 Stereoscopic Campimeter Slate. R. L. Lloyd, Brooklyn—p 391
105 Vernal Conjunctivitis F Allport, Chicago—p 395

Southwestern Medicine, El Paso, Texas

July I No 7

106 Intestinal Obstruction, Report of Cases R L. Ramey, El Paso—p 9
107 Discussion of Diagnosis and Treatment of Infantile La Grippe. W W Dill Albuquerque N M—p 12
108 *Nonpassive Expiration Theory of Bronchial Asthma O H Brown, Phoenix Ariz.—p 14
109 Immunity in Tuberculosis. D C Twichell Albuquerque, N M—p 17
110 Clague Electrolytic Treatment of Lead Poisoning L. G Witherspoon El Paso Tex—p 20
111 Idiopathic Epilepsy E. B Shaw Las Vegas N M—p 23
112 Herpes Zoster Ophthalmicus Report of Case. A D Wilson, Prescott Ariz.—p 31

108 **Nonpassive Expiration Theory of Bronchial Asthma.**—Brown likens a bronchiole with its respiratory bronchioles, atria, infundibula and alveoli, constituting the lobule, to a sort of complicated Maxim silencer or muffler construction, for air to wander about in on its way from the remote air cells to the bronchi, trachea and outside atmosphere. Inspiration takes place with muscular effort under all conditions, expiration is a passive process in normal breathing When expiration is made an active process by bringing the strong abdominal muscles into use to expel the air from the lungs,

the momentum of the air will be greatly decreased and the air tension within the alveoli will be much heightened This increased pressure is applied to all structures within the chest and will affect all thin structures This, then, is Brown's theory The high tension tends to cause the thin walled bronchioles to collapse, and thus further hinders the exhalation It strikes the pulmonary capillaries, dams the blood from them to the right heart, larger veins, and thence to the tributaries which have an external pressure of but one atmosphere The redness of the face and the swelling of the neck veins during coughing paroxysms is evidence of this The bronchial venules and capillaries being under approximately one atmosphere pressure even during the time of forceful expirations get their share of the dammed back blood Since the pulmonary capillaries anastomose direct with the bronchial capillaries, blood is forced to the bronchial mucosa The high alveolar pressure is applied also to the exterior of the bronchial vein and hence facilitates the damming of the blood of the bronchial vein and thence to the bronchial venules and capillaries The pressure is also applied to the bronchial lymph duct, and the lymph is forced into the lymph spaces of the bronchial mucosa The pressure applied to the pulmonary capillaries as well as damming the blood to the right heart forces it onward to the left heart and aorta and causes a rise of arterial blood pressure during expiration, and the higher the arterial pressure becomes the more blood will be pumped through the bronchial vein to the mucosa Forceful expirations without assistance from inflammatory or anaphylactic swelling within the bronchi might produce sufficient passive congestion of the bronchial mucosa greatly to narrow the lumen of the bronchi The common cause of forceful expirations is inflammation and irritation of some part of the respiratory tract. Any inflammatory or anaphylactic swelling or other narrowing of the bronchial mucosa, coupled with coughing, sneezing, dyspnea, or hard breathing of any sort or source may result in such markedly narrowed lumen of the bronchi as to produce expiratory dyspnea, loud piping râles and wheezes, an accumulation of mucus with pellets, shreds and bronchial casts, and emphysema This, Brown says, is asthma.

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

Annals of Tropical Medicine and Parasitology, Liverpool

June, XI, No 1

1 *Malaria in the Gold Coast Colony, West Africa J W S Macfie and A Ingram —p 1
2 Protozoologic Investigation of Cases of Dysentery Conducted at Liverpool School of Tropical Medicine H F Carter, D L Mackinnon, J R Matthews and A M Smith —p 27
3 Occurrence of Ankylostoma Ceylanicum in West African Dogs W Yorke and B Blacklock —p 69
4 Occurrence of Spirocheta Eurygyrata in Europeans in England, with Note on Second Species of Spirocheta from Human Intestine J W S Macfie and H F Carter —p 75
5 Relapsing Fever Spirochetes J W S Macfie and W Yorke —p 81
6 *Persons Who Have Never Been Out of Great Britain as Carriers of Entameba Histolytica W Yorke, H F Carter, D L Mackinnon, J R Matthews and A M Smith —p 87
7 *Studies in Treatment of Malaria J W W Stephens, W Yorke, B Blacklock, J W S Macfie and C Forster Cooper —p 91
8 *Id Intramuscular Injections of Quinin Bihydrochlorid in Simple Tertian Malaria J W W Stephens, W Yorke, B Blacklock J W S Macfie and C Forster Cooper —p 113

1 Malaria in Gold Coast Colony, West Africa —Many of the *most serious* diseases of other tropical countries are either unknown or are but rarely encountered in West Africa Cholera, for example, has never yet broken out on the Gold Coast, and plague, álthough it has visited the colony, is not an established disease, kala-azar and other Leishmania infections, undulant fever, and tick fever are very rarely seen typhoid fever is uncommon, and the trypanosomiasis that does occur is of the relatively mild type due to infections with *T gambiense* Dysentery is prevalent, but it is mainly amebic, and yellow fever and cerebrospinal meningitis periodically occur in fatal outbreaks Malaria, however is exceedingly common, and is mostly of the subtertian variety In the majority of the blood films neither schizonts nor gametocytes are present to aid in the diagnosis The identification of the parasites has therefore to be made in the great majority of cases from the characters of the trophozoites The points which Macfie and Ingram have found of greatest assistance in recognizing the subtertian parasites have been the small size of the organisms, the absence of enlargement of the enveloping erythrocytes, the characteristic coarse stippling which can usually be brought out by suitable staining, and especially the precocious division of the chromatin

6 Persons Never Out of Great Britain Carriers of Entameba Histolytica —An examination of 344 persons who had never been out of Great Britain showed that at least ten (29 per cent) harbored in their feces cysts morphologically indistinguishable from those of *E histolytica* By feeding experiments on kittens the cysts in one of these cases were proved to be pathogenic

7 Studies in Treatment of Malaria —Twenty-two cases of malaria were treated by *intravenous injection of tartar emetic.* The solution used for injection was 2 per cent tartar emetic in water containing 0 5 per cent phenol All these patients had parasites (trophozoites and gametes) in their blood on the day treatment commenced The individual injections varied from 5 to 15 cg, and the total amounts from 15 to 67 5 cg The initial dose was 5 cg in seven cases, 7 5 cg in one, and 10 cg in two, in subsequent injections the dose was increased to 10 cg or 15 cg Thus in eight of the ten cases a larger amount was given than that (32 cg) employed by Rogers, and both the initial and the maximum doses were also larger Not only did the course of the treatment fail to clear the parasites (trophozoites or gametes) from the cutaneous blood, but in six patients the rigors continued and the condition became so serious that the authors were compelled to resort to the administration of quinin In striking contrast to the failure of antimony either to control the fever or eradicate the parasites from the peripheral blood in these six cases, was the action of quinin, after the administration of which, in every instance, the febrile paroxysms ceased abruptly, and parasites, both trophozoites and gametes, disappeared from the cutaneous blood In none of eight cases of malignant tertian malaria in which gametes were present on the day treatment began did the injections cause them to disappear from the peripheral blood In one of two cases in which they were not present on the first day of treatment they made their appearance two days later, while in the other they appeared on the fifth day after treatment ceased

8 Intramuscular Injections of Quinin Bihydrochlorid in Simple Tertian Malaria —The authors found that in cases of simple tertian malaria an intramuscular injection of quinin bihydrochlorid, 15 grains in 2 c c of water, on each of two consecutive days causes the cessation of febrile paroxysms of simple tertian malaria and effects the disappearance of all stages of the parasite from the cutaneous blood The action, however, is only temporary, a relapse occurring within two or three weeks

Archives of Radiology and Electrotherapy, London

July XXII, No 2

9 Case of Traumatic Dislocation of Right Half of Pelvis C H S Webb —p 33
10 *Skin Ink N S Finzi —p 38
11 Simple Method of Localization of Foreign Bodies J S Young —p 40
12 Roentgen Observations on Duodenum, with Special Reference to Lesions Beyond First Portion J T Case —p 41 (Continued)

10 Skin Ink —The following formula is given by Finzi acid pyrogallic, 1 gm, acetone, 10 c c, liquor ferri perchlor fortior, 2 c c, spiritus vini meth ad, 20 c c The solution is best kept in a bottle with a camel's hair brush attached to the cork The mark is a brownish-gray at first, but after a few hours turns a brilliant black It is unaffected by iodin, acetone, ether soap, etc It can be scrubbed with a nail brush and ether soap two days after it is made without being completely removed

British Journal of Tuberculosis, London

July XI No 3

13 Shakespeare's References to Consumption, Climate and Fresh Air St C Thomson —p 95

14 Tuberculous Soldier G S Woodhead and P C Varrier Jones—p 91
15 *Delayed or Latent Tuberculous Infection S Delepine—p 107
16 Value of Arneth's Leukocyte Count in Pulmonary Tuberculosis J F Taylor and H Wilson—p 112
17 Sanatorium Market Garden Colony N D Bardswell—p 119
18 Observations of Tuberculous Latent H H Barnes—p 124

15 **Delayed or "Latent" Tuberculous Infection**—In the experiments referred to by Delepine the period of latency did not exceed three or four weeks but it was sufficiently long to reveal an aspect of infection processes which must be of great importance more especially in relation to latent infections The fact that tubercle bacilli were still living and capable of a modified pathogenic action after being kept for nearly 500 days in a natural tuberculous product (milk) supports the view that under certain circumstances tubercle bacilli are still infective after remaining dormant for a considerable period of time

16 **Value of Arneth's Leukocyte Count in Pulmonary Tuberculosis**—The following practical conclusions may be drawn from Taylor and Wilson's observations Where there is much levodeviation no great permanent benefit may be anticipated from treatment beyond a prolongation of life Should levodeviation be absent even with an extensive lesion the probability is that the disease will progress to chronicity There are cases where an active process with levodeviation may develop into a smoldering fibrosis with improvement in the leukocyte count and this process seems to be favored by the administration of tuberculin An investigation of the nuclear condition of the leukocytes by Arneth's method can render valuable aid in prognosis

British Medical Journal, London

July 21 II No 2951

19 Clinical Organization of Medical Profession C O Hawthorne—p 69
20 Antiseptic Properties of Acriflavine Proflavine and Brilliant Green C H Browning R Gulbransen and L H D Thornton—p 70
21 Medical and Surgical Notes from Mesopotamia. G G Turner—p 75
22 Case of Acholuric Jaundice. W H McKinstry—p 79

20 **Antiseptic Properties of Acriflavine, Proflavine and Brilliant Green.**—These compounds were investigated by the authors and they found that flavine compounds and brilliant green are antiseptics which exert a slowly progressive bactericidal action Concentrations of these substances which at first inhibit and finally kill bacteria are without harmful effect on phagocytosis or on the tissues locally or generally, hence, they are specially suited for therapeutic purposes in infected wounds Flavine compounds may be applied to the peritoneum with safety Flavine compounds (acriflavine and proflavine) are enhanced in their bactericidal potency by the presence of serum, brilliant green in common with most other antiseptics, is reduced in its activity by serum When the antiseptic is inactivated by serum, frequent renewal of the water solution is indicated, this, of course is only permissible provided that the substance is not in itself toxic. Brilliant green satisfies the requirements for application by repeated irrigation, as a powerfully bactericidal solution (1 2 000) in water is practically innocuous to the tissues On the other hand, since flavine compounds are most bactericidal in serum the indication is to arrange the wound dressing so that these antiseptics may act in a serum medium, also since these bodies are not rapidly thrown out of action by serum accumulative deposit should be prevented by avoiding too frequent additions of considerable quantities of the antiseptic solution Clinical experiences have substantiated these conclusions, and the evidence at disposal points to the application of flavine bodies by means of gauze packing or some appropriate modification of this procedure as likely to yield the best results Thus there is evidence that, by taking full advantage of the properties of flavine bodies, a relatively simple technic may be followed. The application of the flavine compounds especially for the purpose of preventing the onset of septic manifestations in early wounds is emphasized, also their use for preventing exacerbations after operating in areas already infected

Dublin Journal of Medical Science

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23 Fractures and Fracture Dislocations. J S M'Ardle—p 153 (Continued)
24 Theory of Body Temperature J M O Connor—p 160
25 Continuous Surgical Laparotomy Sponges W J Smyly—p 165
27 Case of Abscess of Tongue D Hennessy—p 192
28 Recollections of Centro Continental Holiday J Knott—p 193

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29 Nephritis W Boxwell—p 225
30 Bone Grafting for Pott s Caries W I de Wheeler—p 232
31 *Case of Enteric Fever with Hyperpyrexia H C Drury—p 237
32 Place of Curare in Treatment of Tetanus J S M Ardle.—p 239
33 Acute Alcoholic Pancreatitis W St C Symmers—p 244
34 Shell Shock C I Smyly—p 247
35 Operative Treatment of Fixed Backward Displacement of Uterus A Smith—p 257

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36 High Explosives T N T Its Toxic Action in Munition Workers Detection of T N T in Urine, with Experiments W C Smith—p 289
37 Tetanus J S M Ardle—p 298 (To be continued)
38 Limitations of Vaccine Treatment R. J Rowlette—p 306
39 Burns and Scalds as Cause of Child Disablement and Death J Moore—p 313

June CXLIII No 546

40 Case of Intrathoracic Lymphosarcoma G E Nesbitt—p 353
41 Tetanus J S McArdle—p 355 (Concluded)
42 Influence of Environment on Morphology of Acne Bacillus W M Crofton—p 364
43 Typhoid Fever with Special Reference to Its Early Diagnosis W F Wicht.—p 366
44 Nephritis After Burns J Moore—p 375

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45 Fevers Among Troops in Egypt T G Moorhead—p 1
46 Fractures and Fracture Dislocations J S McArdle.—p 21 (Concluded)
47 Tuberculosis on Virgin Soil H T Marrable—p 25

31 **Case of Enteric Fever with Hyperpyrexia.**—This case is of special interest in several points (1) The acute onset with continuous high temperature—103 to 104 F from the evening of admission which was apparently the sixth day of disease, till it terminated with a fatal exacerbation on the tenth day to 107 6 F, (2) The diagnosis of enteric positively supported by the atropin test without delay and with great ease, (3) the appearance of "delirium ferox," which appears to be a very fatal symptom in this disease, (4) the confirmation of the diagnosis by postmortem examination, where the intestinal lesions were seen in an unusually early stage.

47 **Tuberculosis on Virgin Soil.**—Up to 1900, pulmonary tuberculosis was unknown in Central Persia, a plateau varying from 4,000 to 6,000 feet. About the year 1900 it appeared among the Armenians of Julfa, a village two miles from Ispahan being introduced into that community by an Armenian merchant who had lived in India Two years later it appeared among the Mohammedans in the town of Ispahan Between the years 1900 and 1908 over 100 cases were seen and treated in Ispahan Two facts stand out with regard to these cases first, the rapidity of the disease, rarely did it last more than six months, never more than one year, secondly, the mortality all died. In 1908 treatment with tuberculin was commenced Up to the end of 1914 close on 500 patients had been treated by this method The average time occupied by the treatment was six months The preparations used were tuberculin bouillon filtrate bovine (P T O), old tuberculin bovine (P T) and old tuberculin human (T) The first dose administered was rarely larger than 0 0001 c c P T O, and this was increased until the patient was able to tolerate 1 c.c. T The treatment was then stopped, test injections of 0 5 c c. and 1 c.c. T being given once every three months for the first year, and once every six months for the next two years If at the end of three years no reaction had taken place, the case was considered cured, if reactions occurred, a second and sometimes a third shortened course of treatment was given Forty per cent were alive and well three years after the last reaction to a large dose of tuberculin In 20 per cent. of the cases the treatment was found unsuitable, and discontinued, the remainder of cases were lost sight of Previous methods of treatment had proved a complete failure, and in consequence tuberculin was tried in cases which could not be considered favorable, such as mixed infection, hence, the results are encouraging

Glasgow Medical Journal

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48 Two Cases of Subdural Hemorrhage Due to Injury Without Fracture of Skull J H Teacher —p 1
49 Acute Cystitis A G Faulds —p 7 (Concluded)

Indian Medical Gazette, Calcutta

June LII No 6

50 Tour of Instruction G G Giffard —p 185 (Continued)
51 Quarantine Station of Tor N Davis —p 197
52 New War Splint for Fractured Femur J A Shorten —p 201
53 Accidental Suffocation Important from a Medicolegal Point of View M N Ghelani —p 204

Sei-I-Kwai Medical Journal, Tokyo

July, XXXVI, No 7

54 Third Report on Action of Urea on Tetanus Toxin H Sewaki and Y Tagami —p 53
55 Case of Cerebrospinal Meningitis Caused by Fränkel's Pneumococcus T Nomura —p 65

Journal of Tropical Medicine and Hygiene, London

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56 Tropical Diseases Met with in Balcanic and Adriatic Zones A Castellani —p 157 (To be continued)

Lancet, London

July 21, II No 4899

57 *Treatment of Amebic Dysentery with Emetin Bismuth Iodid W Waddell, C Banks, H Watson and W O Redman King —p 73
58 *Effect of Trinitrotoluene on Blood P N Panton —p 77
59 War Surgery in Serbia Penetrating Wounds of Abdomen F Armstrong —p 82
60 Trench Fever E R Grieveson —p 84
61 *Premeningitic Rash of Cerebrospinal Fever C P Symonds —p 86
62 Purpuric and Cerebral Symptoms Occurring in Defervescence of English Measles Two Fatal Cases T Goodard Nicholson —p 87
63 Case of Recovery After Thrombosis of Superior Vena Cava M I Hounsfield —p 87

57 **Treatment of 102 Carriers of Amebic Dysentery with Emetin Bismuth Iodid.**—Waddell and his associates found that emetin bismuth iodid is much more effective than emetin hydrochlorid in the treatment of carriers of *Endameba histolytica*, but about 20 to 25 per cent of failures may occur The intensely irritating properties of the drug in many cases are a drawback in its general application It is advisable to keep cases under observation for not less than fourteen days after treatment, and to examine them not less than four times during that period if relapses are to be detected The drug is without appreciable effect on the intestinal flagellates, but has an effect, usually temporary, on *Endameba coli*

58 **Effect of Trinitrotoluene on Blood**—Panton's experimental work is not yet concluded, but his results are for the most part negative Large doses, up to a gram, of T N T dissolved in toluol can be given to rabbits without any serious effect Injections of dinitrobenzol were similarly harmless effect Nitrous oxid gas given to rabbits and white rats gave rise to cyanosis, drowsiness, and a yellow staining of the fur, but to no other ill effects If the percentage of nitrous oxid gas in the fume chamber was allowed to rise too high respiratory distress resulted, and in one or two instances dyspnea remained for several days, but in no case was sufficient of the gas given to produce a fatal pulmonary complication The gas given to animals, even with small quantities of the gas, showed cyanosis and gave a positive Haldane test in the blood Neither jaundice nor anemia was induced in any instance

61 **Premeningitic Rash of Cerebrospinal Fever**—In three cases of cerebrospinal fever Symonds observed this erythematous rash, it was in each instance observed very early after the onset and before there were any symptoms of meningitis to suggest the diagnosis In one case where the patient was under observation from the onset, there was a profuse rash to be seen six hours later, which had disappeared four hours after it had first been observed In the second case the erythematous rash was present twelve hours after the onset and had almost disappeared six hours later In the third case the probability is that there was primarily a local meningococcal infection of the throat and nasopharynx, and that this became a general infection after the patient's admission to hospital Probably, therefore, in all three cases the rash had made its appearance and faded away within twenty-four hours of the onset of the general infection, and it was a striking feature of each case before meningeal symptoms suggested the diagnosis

Annales de Médecine, Paris

May June IV, No 3, pp 229 376

64 *Localization of Nerve Centers by Effects of Skull Wounds (Topographie cranio cérébrale) P Marie, C Foix and I Bertrand —p 229
65 Graphic and Radioscopic Study of Congenital Disease of the Heart, Five Cases (Les syndromes infundibulaires) E Lenoble —p 250 (See title 74 below)
66 *Vegetating and Suppurating Dermatitis H Gougerot and Clara p 279
67 Histologic Injury of the Spinal Cord from Concussions (Commotion de la moelle epiniere) J Lhermitte —p 295
68 Typhoid and Paratyphoid in the Vaccinated and Nonvaccinated P Pagniez and P V Radot —p 308
69 *Graphic Record of Reflexes. (La myographie clinique) A Strohl —p 315
70 *The Intra Ocular Arterial Pressure P Baillart —p 329
71 Fasting in Treatment of Diabetes Mellitus N B Potter (New York) —p 341

64 **Localization of Brain Centers in Men with Skull Wounds**—Marie, Foix and Bertrand here amplify their previous communications on the uniformity of the symptoms that accompany injury of certain parts of the skull In their total 400 cases of skull wounds they found only two skulls so steeple-shaped that their outline chart did not apply They give illustrations showing the regions of the skull where any moderate wound of the skull caused a certain set of symptoms, uniform in all The findings confirmed with precision the already known data, and have added much that was new to the list. A severe and deep lesion is necessary to induce hemiplegia Monoplegia may develop as paralysis of both legs or of one arm, or as a paretic state of the face, the motor centers for these ranging downward from the top of the ascending frontal convolution The center for the legs is on the median line of the skull, at right angles to it, touching a vertical line from the posterior margin of the mastoid The lesion thus straddling the median line explains why the crural monoplegia affects both legs as a rule With monoplegia of leg or arm, the tendon reflexes were inclined to be exaggerated, the automatic weakened, which seemed to be a favorable omen The lower portion of the ascending frontal convolution did not seem to preside over any motor phenomena, and nothing short of deep destructive lesions in the anterior frontal region entailed serious disturbance In two cases of this type there was an abscess in this region and the mind worked torpidly, the memory was impaired, and the speech very slow and scanning, with stammering or rather repetition of syllables in one case

66 **Parasitic Vegetating Dermatosis**—Gougerot and Clara describe what seems to them a new form of a vegetating, suppurating skin affection It involved nearly the whole body of the previously healthy man of 45 He worked in a foundry in France, and in a few months the affection had spread practically over the entire body, the maximum on the head and legs The affection developed in four waves, and it was conquered by local treatment with petrolatum containing 5 per cent camphorated naphthol On account of the resemblance to American mycosis the man was given potassium iodid, and arsenic on account of the resemblance to Brazilian leishmaniosis No germ unmistakably of causal import could be isolated, but the parasitic nature of the trouble was manifest It seems, they say, to be a new type in the great group of parasitic verrucous and vegetating dermatoses

69 **Graphic Registration of Tendon Reflexes**—Strohl has been applying in the clinic the delicate electric instrument devised to record the reflex movement in the knee-jerk, ankle clonus, etc, in experimental physiology He gives an illustrated description of it and reproduces tracings to show the ease, simplicity and reliability of the procedure while in examining large numbers of men or the same patient at different times, this clinical myography introduces unprecedented precision into the data obtained

70 **Intra-Ocular Arterial Pressure**—Bailliart has been examining the retinal artery in fifty persons between 25 and 47, increasing the natural pulsation by light pressure on the eyeball through the eyelid He comments on the remarkable

fact that the resulting transient total loss of vision has not been regarded as of particular moment in the research done in this line with the oculocardiac reflex etc A black curtain, starting from the nose, spreads out over the visual field for ten or fifteen seconds The interval before the blindness becomes total varies in different persons, possibly the rapidity of the blood flow may influence it The practical side of the research reported is the suggestion that possibly the pressure in the retinal arteries may prove illuminating as to the pressure in the cerebral arteries so close at hand, rather than by estimating the pressure from the distant radial artery In any event, he says, it is a new application of sphygmomanometry

Bulletin de l'Académie de Médecine, Paris

July 10 LXXVIII No 28 pp 13 24

72 Treatment of Suppuration in the Pleura T Tuffier—p 16
73 Dry Hypochlorite and Boric Acid Treatment of Chronic Otitis Media A Pugnat (Geneva)—p 19
74 Frequency of Changes in the Infundibulum of the Pulmonary Artery with Congenital Heart Disease F Lenoble—p 19
75 Advantage of Farm Labor Camps for Soldiers Temporarily Disabled by Malaria F Jeanselme—p 21

72 **Treatment of Intrapleural Suppuration**—Tuffier has now a record of twenty-two old chronic cases and twenty-two quite recent cases of intrapleural suppuration all confirming the benefit from clearing out the focus and closing it as soon as possible watching over the microbes in the lesion, and sterilizing with neutral solution of chlorinated soda or its equivalent, closing the opening as soon as the pleural cavity is clinically sterile thus transforming a pyothorax into a pneumothorax which heals spontaneously In his later series of recent cases there were ten of medical purulent pleurisy and two of suppurating hemothorax One was a girl of 14 with purulent pleurisy after six weeks of ordinary pleurisy Five days after pus was found he resected a rib and evacuated over a liter of pus from the pleura No adhesions were evident. The pleura was sterilized by the Carrel method and the pneumococcus curve and the temperature curve kept parallel The operative wound was sutured the tenth day, and by the twenty fifth day recovery was complete the lung functioning normally, as is evident on radioscopy In another, a streptococcus case over a liter of pus was evacuated and soon after, a second liter after resection of the seventh rib Under Carrel treatment the opening was closed in a month and the lung soon recuperated entirely Fourteen cases of suppurating wounds of the pleura have run the same uneventful course to recovery under these measures in another ambulance. It is evident that the penetration of the air into the pleura is the great obstacle to the expansion of the lung, and hence to complete recuperation But the air cannot be kept out safely until the cavity has been rendered sterile In short, he concludes with these simple means we have it in our power to prevent purulent pleurisy from becoming chronic. By healing it before serious damage has been done, the lung behaves like a normal lung thereafter

Lyon Chirurgical

May June XIV No 3 pp 413 624

76 Extraction of Foreign Bodies in the Mediastinum Ten Cases Recovery Patel and Papillon—p 413
77 *Anatomic Localization of Projectiles by Orthoradioscopy J Coste.—p 441
78 *Probe with Resonator Attachment. J Stefani.—p 476
79 Spinal Anesthesia in Two Hundred Cases G Leclerc.—p 479
80 Postoperative Treatment of Wounds J Cocci—p 489
81 *Muscular Osteomas A Policard and B Desplas.—p 497
82 *Restoration of Severed Nerves E. Duroux and E Couvreur—p 515
83 *Gas Gangrene E Vincent.—p 539 G Leclerc—p 578
84 Tetanus Restricted to Region of Wound S Colombino—p 586
85 Amputation of the Thigh Forty Six Cases A. Chalier—p 591
86 *Prostheses Among the Ancients H Branchu—p 608
87 War Wound of the Ankle with Recovery of Function J Kocher—p 623

77 **Orthoradioscopy for Locating Projectiles**—Coste expatiates on the instructive findings in locating a foreign body by the principle of displacing the tube at regular intervals and taking parallel views from front to rear and from side to side The vertical rays alone are utilized in orthoradioscopy, the diverging rays being shut off by a very narrow diaphragm He gives eighteen diagrams or views thus obtained No special instruments are required

78 **The Stylophone Vibrator**—This is the name given by Stefani to his combination of a metal probe and vibrating resonator The touch of the probe against the particle of metal can be both felt and heard by this means

81 **Osteomas in Muscles after War Wounds**—In the two cases of which an illustrated description is given, the circumscribed ossification proceeded rapidly in the connective tissue, the muscles being invaded only secondarily The osteomas displayed some tendency to retrogress later

82. **Section and Suture of Nerves**—The eight experimental sections of the sciatic and external popliteal nerves on dogs that are described were followed by repair, and the motor functioning was very little impaired Similar injury in man induces pronounced paralysis The experimental and clinical experiences related emphasize the importance of early suture after a nerve is severed In the five clinical cases the ends were coaptated as an electrician splices a cable This restores the nerve to a certain extent and trophic disturbances are materially improved by it but this is probably merely the result of the freeing of the ends of the stumps from cicatricial and edematous tissue The axis cylinder does not regenerate for a long time progressing only about 1 mm a day In one of the cases the distance from the injury to the tip of the fingers was about 620 mm, and it took 630 days for complete return of functioning

83 **Gas Gangrene**—Vincent reports forty cases of gas gangrene developing after the men had been sent back from the front, their war wounds apparently well on the road to healing Over 28 per cent of the men died They had been wounded at different parts of the war zone, the majority from Lorraine In twenty-two of the cases an extensive operation or amputation was done, but thirteen died and three of the others treated with minor surgical measures He laments that the fatalities were unmistakably traceable to the delay before the men got the proper surgical treatment owing to lack of men with surgical training or lack of advanced operating posts Vaccine therapy seems to have a future in these cases, he is confident that the recovery of one of the men was materially promoted by antistreptococcus serum Weinberg insists that the vaccine must be autogenous and total, and be administered immediately He makes the vaccine with the centrifuge sediment from the serous fluid aspirated from the recesses of the wound Lumiere found staphylococci, septic vibrios the perfringens and the Nicolaier bacillus on projectiles by the seventh to the eightieth days when they had entirely and apparently harmlessly healed in the tissues This confirms the danger of rousing slumbering tetanus and gas gangrene germs in a secondary operation It also confirms the advantage of immediately removing the foreign body always as a routine measure.

86 **Prostheses Among the Ancients**—Branchu gives twenty-three illustrations of various devices to correct deformity, from Hippocrates' day down through the sixteenth century The earliest are sets of ivory teeth that were fastened to sound teeth with gold wires Another early device is an artificial eye made to fit in place by cupping suction, with a flexible metal support hidden in the hair Masks with minute openings opposite each eye were used to correct squint Other illustrations show artificial ears, noses and plugs for cleft palate The latter were combinations of sponge and metal plate The sponge was introduced dry, as it swelled it sustained the metal plate against the roof of the mouth Another device worn in the mouth after loss of the tongue permitted some attempt at speech

Paris Médical

July 7 VII No 27 pp 1-44

88 *Difference Between the Results of Injury of Nerve Centers in Peace and in Wartime. J Camus—p 1
89 *Treatment of Wounds of Nerve with Much Loss of Substance P Mauclaire.—p 6
90 *Spinal Cord Trouble from Concussion of the Spine from a Distance. H Claude and J Lhermitte—p 11
91 Psychology of Simulation Laignel Lavastine and P Courbon p 14

92 Visual Hallucinations and Jacksonian Attacks After Injury of the Occipital Lobe P Lereboullet and J Mouzon—p 19
93 The Psychic Disturbances After Shell Shock (Les commotionnes) R Charon and G Halberstadt—p 23
94 Defective Restoration of Motor Nerve Fibers Andre Thomas—p 33
95 Isolation and Reeducation of the "Functionally Wounded" Massacré—p 38

88 **The Neurology of Peace and War**—This issue of the *Paris Médical* is devoted to various neurologic questions clamoring for solution Camus relates that time has demonstrated that in many cases of supposed irreparable paralysis and other nervous affections from war wounds, great improvement has been gradually realized But for those with paraplegia, eschars and sphincter trouble, or hemiplegia or contracture with frequent epileptic seizures, special provision must be made He discusses this in detail, and the functional and professional reeducation of these *grands infirmes du systeme nerveux* He reiterates that they do not belong in the surgical services, and they cannot be sent home, as without specialized care complications would soon develop, but they should be near their families, and their quarters should be made as homelike and attractive as possible Their future depends on the care and encouragement they receive now, and astonishing cures may be possible

89 **Treatment of Nerves with Much Loss of Substance**—Mauclaire has used the trachea from chickens and geese as a tubular sheath slipped over the stumps of the nerve to serve as a guide for their regenerating fibers He here gives an illustrated description of this and other means for bridging a long gap as practiced by himself and others Unfortunately the variety of the technics is not paralleled by the excellence of the results This is due to the fibrous neuritis which accompanies war wounds and often is tantamount to a section of the nerve The first step, therefore, with any technic is to clear away all fibrous tissue from the ends of the nerve

90 **Spinal Cord Lesions from Indirect Injury**—Claude and Lhermitte show that besides the injury of the spinal cord from a shell explosion near by, without local traumatism, and those from direct concussion of the spine, similar injury may be induced by a projectile striking soft parts at a distance, the chest walls or the muscles near the spine

Presse Médicale, Paris

July 9, XXV, No 38, pp 385 400

96 *Association of Reflex Nervous Disturbances with Hysteria in the Wounded (Troubles physiopathiques d'ordre réflexe) J Babinski and J Froment—p 385
97 *Extraction of Projectiles in the Pelvis Through Pósterior Wall Auvray—p 386
98 *Rebuilding the Face (Autoplastie de la face suivant la methode Moure) P Pietri—p 388
99 *Gas Gangrene A Chalier—p 390
100 *Emetin Bismuth Iodid in Treatment of Amebic Dysentery A Leboeuf—p 391
101 *Resection of Auriculotemporal Nerve in Treatment of Parotid Fistulas L Dieulafé—p 392
102 Intraspinal Anesthesia V Pauchet—p 394

96 **Reflex and Hysteric Nervous Disturbance in the Wounded**—Babinski and Froment admit a reflex element in certain motor nervous disturbances in the wounded, but say that this does not last Its place may be taken, however, by a hysteric contracture, so that treatment for hysteria may ultimately cure when at first it had no effect on the nervous trouble

97 **Access to the Pelvis from the Rear**—In the three cases described, Auvray removed a scrap of shell in the posterior wall of the rectum or close to the sacrum or the bladder, through an opening made in the sacrum The gluteus muscle was divided lengthwise of its fibers and then they were cut across There has been no disturbance in the gait or functioning of the muscles since This mode of access has several advantages in such cases

98 **Reconstructing the Face**—The photographs "before and after" show the excellent result of the application of Moure's method of autoplastics He utilizes the subjacent adipose tissue to pack the depressions, turning it over by the Indian technic The actual loss of the soft parts is generally small, even when the deformity is considerable, and it is usually possible to reconstruct the face satisfactorily from what is left after the wound has entirely healed A course of hot air and massage are given first to loosen up the tissues

99 **Gas Gangrene**—In Chalier's 108 cases of true gas gangrene, it developed within twenty-four hours in 16 per cent, not until the third or sixth days in 18 per cent, but in all before the week was out The wounds were all on the limbs, generally the legs, and always with great laceration of muscles In 74 cases conservative measures were applied and proved successful in over 55 per cent of the 52 cases which did not compel amputation later This group included 27 3 per cent of 22 of the diffuse form The conservative measures were deep and extensive electric cauterization (*pointes de feu*), and interstitial injection of hydrogen dioxid after extensive excision of all affected tissues

100 **Emetin Bismuth Iodid in the Treatment of Amebiasis**—Lebœuf has been giving a trial to emetin and bismuth iodid in treatment of amebic dysentery, and thinks that this compound is more regularly effectual than emetin alone The latter is liable to be eliminated before it has had a chance to do all its work In the ten cases reported the men took 0 18 gm of the iodid daily for twelve days, and the ameba and cysts disappeared completely from the stools

101 **Nerve Resection in Treatment of Salivary Fistula**—Dieulafe has resected the auriculotemporal nerve in treatment of rebellious fistulas in the parotid gland in five cases In two the operation had to be done in the midst of cicatricial changes This arrested the secretion of saliva, and the fistula healed as the irritation from the saliva ceased In two cases the healing was hastened by cauterizing which previously had had no effect

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 7, XLVII No 27 pp 849 880

103 *The Movements of the Eyes Induced by Tests Applied to the Ears J Stähli—p 849
104 The Origin and Nature of the Roentgen Rays M Steiger—p 860
105 *Vacuum Bottles as Receptacles for Milk von Bergen—p 870
106 *Suicides from Poison J R Spinner—p 872

103 **Labyrinthine Ophthalmostatics**—Stähli remarks that in a few years the centennial of the discoveries by Flourens in the field of vestibular physiology can be celebrated But only comparatively recently has medicine sought to utilize the data thus presented so long ago by the physiologists Barany the otologist and Bartels the ophthalmologist have contributed much in this line, and all within the last ten years The ear-eye movements are observed almost throughout the whole animal kingdom, Stähli recalls, even in invertebrates There is quite a literature on the ear-eye movements in crabs He describes the physiologic mechanism and the various features of vestibular nystagmus, the caloric reactions, etc With rotation nystagmus there are always two phases, a slow and then a rapid phase The latter does not appear in the unconscious, the prematurely born and in others with defective brain action This seems to indicate that the ear is responsible for the first phase alone, the second phase is the work of the brain The nystagmus can be induced by only slight rotation, not more than for a few degrees These ear-eye movements have proved most instructive in otology to date the caloric and rotation tests demonstrating whether or not the vestibular apparatus is intact Neurology also depends on these tests for diagnosis of intracranial tumors, ocular paralysis, etc Certain features of miners' nystagmus indicate that influences from the ear are important if not the exclusive factors The nystagmus of the blind is entirely involuntary, and ear influences are probably at work here also In Stähli's practice at Zurich he has encountered many cases of tremor of the eyes or pronounced nystagmus in apparently entirely healthy persons The nystagmus was horizontal in some, rotary in others, and vertical in a few This nystagmus used to be ascribed to difficulty in fixation during early childhood, with more or less defective vision, but now we regard the ear as responsible for it This is the more probable as examination shows normal conditions in the eyes as the rule Recent research has indicated further that for certain forms of squint the ear must be incriminated In short, these "labyrinthine ophthalmostatics" offer a new and interesting

field for further study by physicians as well as by eye and ear specialists

105 **Vacuum Bottles for Keeping Milk Warm**—Bergen warns that milk kept warm in a vacuum bottle is an excellent culture medium for germs all the conditions favoring proliferation of germs in the milk If a vacuum bottle is used the milk should be poured in boiling hot, this will help to keep it properly

106 **Suicides with Poisons**—Spinner cites statistics in Switzerland which show that suicides from poison are more numerous among male than among women suicides Of the total 474 poison suicide cases in Switzerland during the last ten years 56 1 per cent were men and only 43 9 per cent women and girls He urges compilation of data as to the kind of poison and other features of the cases as a basis for prophylaxis He cites as typical of what can be accomplished the complete disappearance of phosphorus poisonings of all kinds since phosphorus matches are no longer used

Gazzetta degli Ospedali e delle Cliniche, Milan

June 3 XXXVIII No 44 pp 649 663

107 *Special Features of Typhoid in the Italian Troops F Durant p 651

June 7 No 45 pp 665-672

108 Meningococci in the Blood C Raffaelli—p 665
109 Hemiplegia from Cerebral Embolism Following Bullet Wound of Internal Carotid C. Frugoni—p 667

107 **Typhoid in the Troops**—Durant describes the special features which distinguish typhoid in the camp environment as modified by vaccination etc in 215 cases He regards the diarrhea as a defensive process, and reenforces it by giving daily 20 gm glycerin by the mouth in a liter of water This has nourishing value, he says, besides that it facilitates the absorption of food and has a direct disinfecting action on the bacterial flora and an indirect action, by means of the bile, on the biologic properties of the germs present in the intestines Its cholagogue action is the most important perhaps The results of this treatment have been good in his experience, he has also had excellent results with vaccine therapy in addition.

108 **Meningococci in the Blood**—Raffaelli declares that epidemic meningitis must be considered a meningococcus sepsis The meninges are merely the most common seat of the metastases In twenty-two cases described in detail they were found in the blood in all but two and in these cases only a single examination was made He thinks that the negative findings others have reported must be ascribed to the slight resisting power of these cocci, they die off before they get a chance to proliferate unless the culture is made directly from a vein He urges that during epidemics the blood rather than the nasopharyngeal secretions should be examined This would disclose carriers much more reliably than with the usual measures, especially in case of children with fever from gastro-intestinal, visceral or joint trouble purpura etc This might reveal hitherto overlooked links in the chain.

Policlinico, Rome

July 8 XXIV No 28 pp 873 900

110 *Epidemic of Infectious Purpura among the Troops F Vannutelli—p 873
111 Hemorrhagic Nephritis among the Troops C Bartolotti—p 879
112 Operative Treatment and Cure in Case of Destructive Noma. L Moncalvi—p 884
113 *Improved Technic for Ligation of Popliteal Artery S Marinacci.—p 888
114 *Electrovibrator in Treatment of Digestive Tract. V Maragliano—p 888

110-111 **Purpura and Nephritis in Soldiers**—Vannutelli says that when this hemorrhagic disease developed in epidemic form among the troops at the front, many regarded it at first as of factitious origin as the hemorrhagic manifestations were restricted almost entirely to the legs After a prodromal period of eight or ten days, the symptoms resembling Werlhof's disease developed and recovery was not complete for from one to three months The pulse was slow and pressure low, the spleen enlarged but no blood or albumin in the urine as a rule. Treatment was with salicylates and epinephrin, the latter proved very effectual He usually gave the epinephrin by the mouth up to 90 or 100 drops daily of a 1 1 000 solution, and injected two 0 25 c c ampules of the same The effect was most favorable when the epinephrin was given systematically for a long time, and especially by the subcutaneous route He insists that it has a triple action, checking the tendency to hemorrhage, counteracting the intoxication by stimulating diuresis, while at the same time it exalts the organic defensive processes The only men affected were those who had been long in the trenches The early fall was the season of the epidemic, scarcely any cases being encountered after November 1

Bartolotti has observed a number of somewhat similar cases only that the kidneys were affected more regularly He incriminates the excess of proteins in the diet as this seems to be far beyond what is suitable for men unable to get exercise in the trenches

113 **Improved Technic for Ligation of Popliteal Artery**—Marinacci obtains access to the artery where it leaves the adductor to enter the lozenge-shaped popliteal space, reaching it through a vertical incision along the internal posterior margin of the tendon of the adductor longus, the knee semiflexed The artery is reached closer to the surface here and is more readily separated from the vein, than by the usual technic.

114 **The Electrovibrator in Gastro-Intestinal Differentiation.**—Maragliano has the subject ingest some magnetic iron and then he applies the electrovibrator to the outside The palpating hand can readily locate the outlines of the organ containing the iron as the vibrations occur under the influence of the electric apparatus The findings are most pronounced with the stomach but even in the cecum it is possible to follow the iron in this way after ingestion of about 30 gm, and control the findings with roentgenography It is possible that the vibration induced inside the organ by this means might have a direct curative action, a kind of internal massage

Riforma Medica, Naples

June 30 XXXIII No 26 pp 669-688

115 Treatment of War Wounds of Joints. S Salinari—p 669 Continuation
116 War Nephritis Two Cases L. Eustachio—p 674 To be continued
117 *Spontaneous Muscle Sign of Tabes A. Cominelli—p 677

117 **Tendon-Muscle Twitching as Symptom of Tabes**—Cominelli called attention nearly eight years ago to what he called muscle-tendon subsultus, a spasmodic jerking of the muscles as the patient stands erect, most marked in the region of the ankle There does not seem to be any regularity or rhythm to the twitching, but it corresponds to the course of the tendons and is evidently a sign of spinal ataxia He here reiterates its differential and pathogenic value, quoting from the literature on the subject of ataxia in general A tracing is given of the subsultus taken with the eyes open and another with the eyes closed The difference between them is pathognomonic of ataxic parakinesis He has never found this sign absent in tabes, and says that it may even precede the motor symptoms

Brazil Medico, Rio de Janeiro

June 9 XXXI No 23 pp 193 200

118 Present Status of Diphtheria. R. D de Sanson—p 193 Commenced in No 22 p 185

June 16 No 24 pp 201 208

119 Intestinal Trichomonosis. R da Silva—p 201
120 *Puncture of Corpus Callosum (Uma operação de Bramann) C Wallau—p 203 Commenced in No 20 p 168

120 **Puncture of Corpus Callosum**—Wallau reports the first operation by Bramann's technic done in Brazil The patient was a girl of 14 who had lost the sight of one eye and the other was fast going—choked disk being already apparent—from some intracranial lesion The corpus callosum was found at a depth of about 6 cm The brain showed no sign of pulsation when the skull was opened, owing to the extreme compression to which it had been subjected, but after the corpus callosum had been punctured and about 10 gm of a bloody fluid withdrawn, the pulse in the brain seemed to return to normal The operation lasted not quite an hour

132 **Peptic Ulcers**—Urrutia reviews the literature on jejunal ulcer following gastro-enterostomy, and reports six cases from his own experience In one an anterior gastro-enterostomy for duodenal ulcer put an end to the symptoms for ten days, but then others flared up, and in a month a tumor could be palpated in the epigastrium With peptic ulcer after posterior gastro-enterostomy palpation is seldom possible There was a tumor the size of a mandarin orange in one of his cases but it could not be felt through the abdomen wall In two of his cases the jejunum perforated into the colon The diagnosis was unmistakable when this occurred Polya in 1912 had compiled nineteen cases of this type In one of Urrutia's cases the hyperacidity persisted almost unmodified after the gastro-enterostomy and notwithstanding extreme care and most careful dieting a peptic ulcer developed in the jejunum In his last three cases, one patient died in spite of a prompt secondary operation

Grece Medicale, Athens

XIX No [illegible] pp 5 [illegible]

133 Postoperative Eventration, Two Cases G [illegible]dre Kolias—p 5 Commenced in No 1 p 1
135 Treatment of [illegible] Queyrat Commenced in No 1 p 3

134 **Postoperative Eventration**—In the first of the two cases described—in a woman of 45—the eventration had followed removal of a cystic ovary and the skin had ulcerated The protruding intestines slid back into place as the woman reclined but finally they burst through the skin and were in contact with the clothing for fifty-two hours The rectus muscles had been so stretched that they could be drawn up to close the gap He thinks that the eventrated bowel should be replaced if it has not become infected and is not covered with false membranes In both cases he did this and the wound healed by primary intention The abdominal fluid lubricates and protects against infection as the saliva protects erosions in the mouth A narrow corset leaving the diaphragm free is an excellent means of protecting against eventration in those with large paunches The latter are prevalent in the near East as starchy foods are used a great deal and much fluid ingested

Kitasato Archives of Experimental Medicine, Tokio

April I No 1 pp 1 156

136 *On the Life Cycle of the Mite Carrier of Tsutsugamushi Japanese River Fever M Miyajima and T Okumura—p 1 In English
137 Investigation of Therapy of Tuberculosis K. Shiga—p 17 In English
138 *Spirochetosis with Hemorrhagic Jaundice. R Inada Y Ito and others—p 55 In German
139 *Stain for Protozoa and Blood Corpuscles. T Watabiki—p 153 In French

The "Kitasato Archives"—This new publication issues from the Institute for Infectious Diseases founded by Kitasato in 1892 on his return from his work with Koch It was founded as a private undertaking but was transferred to the government for a time 1899 to 1914 and is now again a private institution The *Archives* are to be issued twice a year in English French and German aiming to bring Japanese medicine to the attention of the world

136 **Mite Carrier of Tsutsugamushi Disease**—'River fever' occurs endemically in certain parts of Japan and resembles somewhat Rocky Mountain fever and also typhus, but the transmitting agent seems to be a minute yellowish red mite This communication with its colored plates describes the life cycle of this hairy arthropod It is said that the proper name for it should be *Leptus akamushi*

138 **Icterohemorrhagic Spirochetosis**—This article was reviewed when published elsewhere See THE JOURNAL, Sept 9 1916, p 842

139 **Polychrome Stain for Protozoa and Blood Corpuscles**—Watabiki relates that he has been studying for years to find the best formula for differential staining purposes and describes here the technic which he has found most satisfactory The tints are no deeper than with the Giemsa but the different parts of the cell show up more plainly The nucleus the spirochetes, flagella and the chromatin of the malaria germ show up a reddish violet, while the bodies of trypanosomes malaria germs and the protoplasm of the leukocytes and other cells are blue, the granules of eosinophils and pseudo-eosinophils are red, the neutrophil granules pale bluish red, the basophil granules dark violet, almost black Bacteria stain blue or black, the nucleus of the nucleated red corpuscles a bluish black The formula for the first solution is 1 part pure methylene blue, 10 parts absolute alcohol, 1 part sodium carbonate and 90 parts distilled water Dissolve the blue in the alcohol and the carbonate in the water and then mix and set aside at a temperature of 37 C for two days The second reagent is a solution of 1 part eosin in 200 parts distilled water (soluble *eosin jaunatre*) Reagent No 1 after filtering is slowly added to Reagent No 2 and the mixture is incubated at 37 C. for twenty-four hours to give it time to dry out The resulting powder is ground in a mortar and methyl alcohol added in small amounts The solution of the powder in the methyl alcohol is then filtered and glycerin added It keeps a long time in a cool dark place It is applied in ten parts distilled water, leaving it in contact with the specimen for from ten to thirty minutes

Russkiy Vrach, Petrograd

XVI No 10 pp 217 240

140 Organization of the Medical Societies of Petrograd District with Enlarged Aims K P Sulima—p 217
141 *Retrograde Catheterization in Treatment of War Wounds Involving the Urinary Passages T K Veber—p 219
142 Paralysis of the Arm after Application of Esmarch Band V N Parin—p 222
143 A Year's Experience with War Wounds of the Skull S I Liuhomovitch—p 224 Concluded in No 11
144 Bactericidal Efficacy of Ehrlich's Salvarsan and Hata's Arsaminol M P Izabolinsky and L B Malkina—p 227
145 *Chemotherapy of Lambliosis V L. Yakimoff and others—p 232
146 The Physiologic Bases for Electrocardiography and its Clinical Importance M M Gubergritz.—p 233

141 **Retrograde Catheterization with Obstructed Urethra**—Veber refers in particular to obstruction caused by a war wound and expatiates on the advantages of catheterizing from the bladder downward Only a very small opening in the bladder is necessary to introduce the catheter, but the anterior wall of the bladder must be drawn taut as otherwise the neck region might protrude and block the entrance into the urethra By passing a silk thread through the entire urethra from above it is possible to keep up the catheterization indefinitely finally getting a retention catheter in place. All this immensely simplifies treatment of war wounds in this region and of suppurating processes around the urethra He mentions that Verguin published the first attempt at retrograde catheterization in 1757 Veber reports a particularly instructive and successful case from his own service.

145 **Treatment of Lambliosis**—Yakimoff and his co-workers comment on the wide distribution of the *Lamblia intestinalis* in animals as well as man It has been found in mice, rabbits dogs sheep and African hawks They experimented with it in white mice, giving salvarsan to the infected animals, and report that salvarsan thus proved its efficacy in the cure of lambliosis A 1 per thousand solution of salvarsan seemed to answer the purpose completely, no lamblia parasites being found in the intestines of the infected mice thus treated and killed from one to over three months later The salvarsan did not seem to affect the *Octomitus muris* which was occasionally found in the mice but its prompt success in eradicating the lamblia suggests that it may prove effectual for lamblia dysentery and diarrhea in man In their experience on the firing line in the Caucasus in 1915, numerous cases of dysentery and diarrhea were encountered in which neither the dysentery bacillus nor ameba could be discovered and for which the lamblia seemed alone to be responsible In Yakimoff's laboratory, about 70 per cent of the mice harbored the lamblia but salvarsan treatment seems now to have exterminated the lambliosis among them It was given by intravenous injection in 1 300 up to 1 1 000 solutions allowing 1 c c of the solution to each 20 gm of body weight of the mouse

146 **The Physics Involved in Electrocardiography**—Gubergritz gives an illustrated description of the physical and mechanical principles involved in electrocardiography, and discusses the various theories that have been advanced to

explain its nature The conclusion follows in the next issue of the *Vrach*

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

June 2, I, No 22, pp 1783 1858

147 *Inversion of the Uterus J G de Lint—p 1785
148 The Taking Up of Odorous Substances and Narcotics by the Nerve Cells (Over het opnemen van reukstoffen en riekende narcotica in zintuigcellen en cellen van de hersenschors) J H Kremer—p 1800
149 *Improved Technic for Detection of Occult Hemorrhage in Alimentary Canal J R F Rassers—p 1808
150 Presenile Dementia of Alzheimer Type, Two More Cases G P Frets—p 1812
151 Medical Impressions of America. C W F Winckel—p 1834

147 **Inversion of the Uterus**—De Lint recently had a case of puerperal inversion of the uterus and describes two other unpublished cases He also tabulates the details of five cases of inversion for which a tumor was responsible, and a number of puerperal cases bringing the total to twenty-nine during the last twenty years in the Netherlands This is a proportion about three times as large as is on record in German-speaking countries during a similar period Ruysch reported in 1691 that he had encountered two cases in one week, and remarked that probably more cases of inversion occur than get recognized In one of the more recent cases the inversion occurred at the woman's fourteenth delivery, but over 33 per cent were at the first or second childbirth In de Lint's case the complete inversion followed forcible pressure by the nurse on the fundus through the abdomen, for expulsion of clots, the day after delivery Attempts to push the uterus back by pressure from the bottom were unsuccessful He finally managed to work part of one side back into the cervix, and then as he was striving to do the same on the
her side, the uterus suddenly slid back entirely into place
manipulations had evidently induced the organ to con-
and its elasticity enabled it to reduce itself spon-
eously Hot irrigation afterward with 1 1,000 thymol was followed by tamponing the vagina and the pelvis was raised and ergot injected and fluid given by the drip method At first there was a febrile temperature and excessive lochia, but by the end of the week the patient was sitting up and by the end of the month the uterus seemed to be in its normal position

All the patients recovered in de Lint's compilation except five who succumbed to anemia and one whose uterus had ruptured One of the women died a year later from cancer of the uterus In only very few cases did the inversion occur spontaneously during urination, defecation or stooping over Several writers mention that attempts to reduce the whole *en masse* always failed, while gentle manipulations, forcing small areas back into place, started natural contractions of the uterus, and the organ slid back of itself In five of the total twenty-nine cases, after failure of manual reduction, the uterus was restored to place by working through an incision in the pouch of Douglas or in the posterior wall of the uterus itself or the fundus was seized with forceps introduced through a laparotomy opening The reduction was facilitated by seizing the uterine ligaments while the uterus was pushed up from below Thorn published in 1911 a compilation of 521 cases of puerperal inversion of the uterus, from international literature during a twenty-two year period The mortality was 16 per cent , three of the women died from the shock of the reduction In de Lint's series, the mortality was 20 per cent but none succumbed to shock This seems to be the result of traction on the peritoneum, and reduction puts an end to this, aided by camphorated oil, etc , drawing a rubber tube around the uterus to prevent further hemorrhage The cases reported by de Lint show that even when the inversion has lasted a long time, patient and persevering manual reduction may safely reduce it The interval in some of the cases
was four days, eight days and eight months ca
the diagnosis was made the twelfth day and reduc ır
spontaneously a week later In conclusion he
case seen by Castex in an Arab tribe The woman
up by her feet by two men, the head down, and a
oil was poured over the protruding uterus which
easily pushed in. , Castex had found reduction ab

impossible before this The woman succumbed to peritonitis a few days later

149 **To Facilitate Detection of Occult Blood in the Stools**—Rassers writes from the Pharmacotherapeutic Laboratory of the University at Leyden to call attention to a technic for determination of occult blood by which error from the presence of ferments seems to be obviated The tests hitherto in vogue give a positive response with other substances besides hematin, and Boas in a recent communication said that these misleading substances are probably inorganic thermostable oxidases derived from the food This latter assumption Rassers was able to confirm as he obtained from potato, soy bean and cornmeal—by a technic described—two ferments, one soluble in water, with a specific response to the guaiac test but becoming inert when heated to 100 C The second ferment, in an acetic acid-alcohol extract, gives no reaction with the guaiac test but responds positively to the benzidin and phenolphthalin tests, and does not become inert in this respect until heated to 170 or 180 C Hematin does not stand well heating to this point This he proved by adding equal portions of hematin to equal portions of chemically pure sand, and heating one The heated portion gave much weaker responses to the various tests applied thereafter than the unheated portion To avoid these sources of error he has worked out a simple technic by which disturbing ferments seem to be entirely eliminated It is based on the property possessed by ferments of being precipitated by concentrated solutions of cooking salt. He first binds the ferments with the salt solution, and then makes an ether-alcohol extract The alcohol is not able to separate the ferments from their combination with the salt, but it extracts the hematin, and thus if any hematin is present in the fluid it can be readily shown up After certainty that no blood from gums or hemorrhoids will falsify the test, and the patient has refrained for at least five days from food containing blood, 20 gm of stool is thoroughly rubbed up in a mortar with equal parts acetone or equal parts of alcohol and ether From the mass left on the filter, allowed to dry a little, 1 gm is weighed out and after addition of ten drops of glacial acetic acid, it is thoroughly mixed with 20 c c. of a 25 per cent solution of kitchen salt Then 10 c c of absolute alcohol is added and the whole filtered When this technic is applied to feces rich in ferments but free from blood, such as normal infant stools, no ferments will be found in the filtrate If hematin has been added to the stools, it will show up as plainly or at least only very slightly less distinctly than without this treatment.

The method has one single drawback, namely, that with it the benzidin and guaiac technics cannot be applied to show up the hematin However, Rassers remarks, a mixture of acetic acid-alcohol and cooking salt gives a positive reaction with these tests even without any hematin The loss of the benzidin reaction is to be regretted, but the fact that kitchen salt is able to give a positive reaction with it does not enhance the reliability of this reaction as a test for occult blood The guaiac test, on the other hand, is not sensitive enough for negative findings with it to be conclusive The phenolphthalin test may answer the purpose He never obtained positive findings with it in normal persons

Hospitalstidende, Copenhagen

June 20, LX, No 25, 597 620

152 *Case of Myocarditis Localized in the Interventricular Septum with Peculiar Anomalies in the Electrocardiogram L S Fridericia and P Møller—p 597 Commenced in No 24, p 573

152 **The Electrogram with Myocarditis of the Ventricular Septum.**—Necropsy showed fibrous changes in the interventricular septum The electrocardiograms displayed certain special features which will in future differentiate affections of this type, especially the absence of any sign to show that
he auricles were pulsating, notwithstanding the regularity
he heart beat. The tracings of the ventricle beat also
in shape in the different systoles. All the four hitherto
ed cases of varying electrographic systole-complexes
n patients with severe symptoms of cardiac insuf-
e has been no necropsy in two and in the
findings seemed to be negative.

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TRUTH ABOUT INTRASPINAL INJECTIONS IN TREATMENT OF SYPHILIS OF NERVOUS SYSTEM *

BERNARD SACHS, M D
NEW YORK

Intraspinal injections of salvarsanized serum or serum plus salvarsan in the treatment of syphilis of the nervous system is a form of antisyphilitic medication which has exercised a curious fascination over the medical man during the past few years and has gained a large number of adherents among the general medical public This was due, first, to its very respectable parentage, and secondly, to the fact that nothing was hailed with greater satisfaction than the prospect of striking at the very root of serious disease by injecting the remedy directly into the spinal canal in almost immediate proximity to the chief seat of trouble I was one of the earliest victims of this fascinating belief, and at the International Congress in London, stated frankly that I thought this newer method of antisyphilitic medication promised better results than anything else that had heretofore been suggested The large experience of later years has convinced me and my associates, Drs Strauss and Kaliski, that the hopes placed on this intraspinal method were unwarranted, and that it has achieved nothing that cannot be obtained by the intravenous method

The present-day aim of specific therapy is to bring the spirocheticidal remedy, if possible, into immediate contact with the foci of disease in the tissues of the brain, the spinal cord and their coverings It so happens that in general paresis the spirochetes, as Noguchi has shown, are inserted in the gray matter of the cortex at some distance from the surface, and that in tabes dorsalis, excepting in the very earliest stages, syphilitic disease has brought about marked degenerative changes in the spinal cord which we could hardly expect to be affected by any remedy in whatever way it may have been introduced There remain, however, a considerable number of specific meningo-encephalitic and meningomyelitic processes, truly exudative in character, which could be reached readily enough by intraspinal medication if such remedies were allowed to course freely in the cerebrospinal fluid, and if it could be shown that they were retained in this fluid for any satisfactory period of time

My clinical experience had taught me some years ago that the intravenous injection of salvarsan or neosalvarsan produced results that were entirely satisfactory and that were at least comparable with those obtained by intraspinal medication Other things being equal, the intravenous method is much the safer and for that reason alone would have been preferable, for in hundreds of intravenous injections I have not had a single unfavorable experience so far as life is concerned, whereas no one who has had much experience with the intraspinal form will deny that often enough serious results follow on this form of medication, and that even if life is not actually in danger, as it sometimes is, paralyses and serious vesical disturbances often ensue The claims made for the superiority of the intravenous over the intraspinal method would, however, remain unsatisfactory unless some substantial explanation could be given for failure of the intraspinal method to accomplish more than its rival Three years ago, in a research in which I took part in association with Drs Strauss and Kaliski, and with the assistance of as able a chemist as Professor Benedict, it was shown that salvarsan introduced in the usual quantities into the blood current actually appeared in the cerebrospinal fluid in appreciable quantities The older doctrine, therefore, that the choroid plexus is impermeable and that salvarsan introduced intravenously cannot be expected to reach the cerebral or spinal tissues had to be abandoned

In view of these findings, the question arose whether after intraspinal medication the infinitesimal amount of salvarsan that could be introduced with safety directly into the canal was any greater than the amount which would naturally reach the cerebrospinal canal after the antecedent intravenous injection Later on it was suggested that instead of using the patient's serum withdrawn after intravenous injection, salvarsan or neosalvarsan be added to the blood serum and injected into the spinal canal by lumbar puncture Rational as such procedures may appear to be, they were entirely discredited by subsequent studies on the functions and behavior of the cerebrospinal fluid

The important facts that have come to our knowledge are, first of all, as Weed has pointed out, that, since pressure in the cerebral capillaries is considerably higher than the cerebrospinal tension, it is far more likely that fluid leaves the cerebral capillaries, and circulates in the pericapillary and perineuronal spaces, yielding nourishment and receiving waste products and finally leaving the tissues by the pericapillary and perivascular spaces to the subarachnoid cavities over the surface, whence absorption into the venous sinuses takes place

It is evident, therefore, that a metallic substance like salvarsan introduced into the spinal canal does not remain in the cerebrospinal fluid for any length of time, but is rapidly absorbed into the venous system

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* Chairman's address, read before the Section on Nervous and Mental Diseases at the Sixty Eighth Annual Session of the American Medical Association New York June 1917

in any manner[3] The dogs in these cases were killed from four to six months after the implantation The intestine, ureter and kidney were all removed for tests The intestine in each case was clamped above and below the implantation, thus isolating and making a closed sac of this segment The ureter was split, the nozzle of a fountain syringe was inserted into the opening, and the water run into this clamped segment of the intestine under pressure When the nozzle was withdrawn, not a drop of water flowed back through the ureter, even though the intestine was squeezed with a good deal of pressure (Figs 12 and 13, *A* and *B*) In one instance the intestine was actually squeezed to the point of rupture elsewhere before a single drop of water would flow back through the ureter[4] I feel that I have proved my principle mechanically and experimentally, but one may ask, "How about clinical results?" Dr Charles H Mayo, who was chairman of the section when these experiments were presented, immediately applied the principle clinically, and in an interview (December, 1916) he told me that he had implanted both ureters (doing the operations one ureter at a time) in something like fourteen cases, making twenty-eight ureteral implantations in all Some of these were done for cancer and some for exstrophy of the bladder In only one case has there been a bad result, or evidence of destruction of the kidney In this case (which was for cancer of the bladder) the ureter was much thickened and dilated at the time of the operation so that it was not collapsible This patient died Dr Mayo says that he has realized that this was not a proper case for this operation and recommends that in cancer cases in which the ureter is much dilated and not easily collapsible, the ureter should be drawn out through the loin One of Dr Mayo's patients lives in Rochester, and, therefore, has been under close observation for more than five years This series of cases, when Dr Mayo reports them, will, I believe, mark a new era in urologic surgery, for no such successful report of cases in which the ureter has been transplanted into the intestine has been made up to date While I myself have had the opportunity to implant only four ureters in three patients, these cases have been equally successful

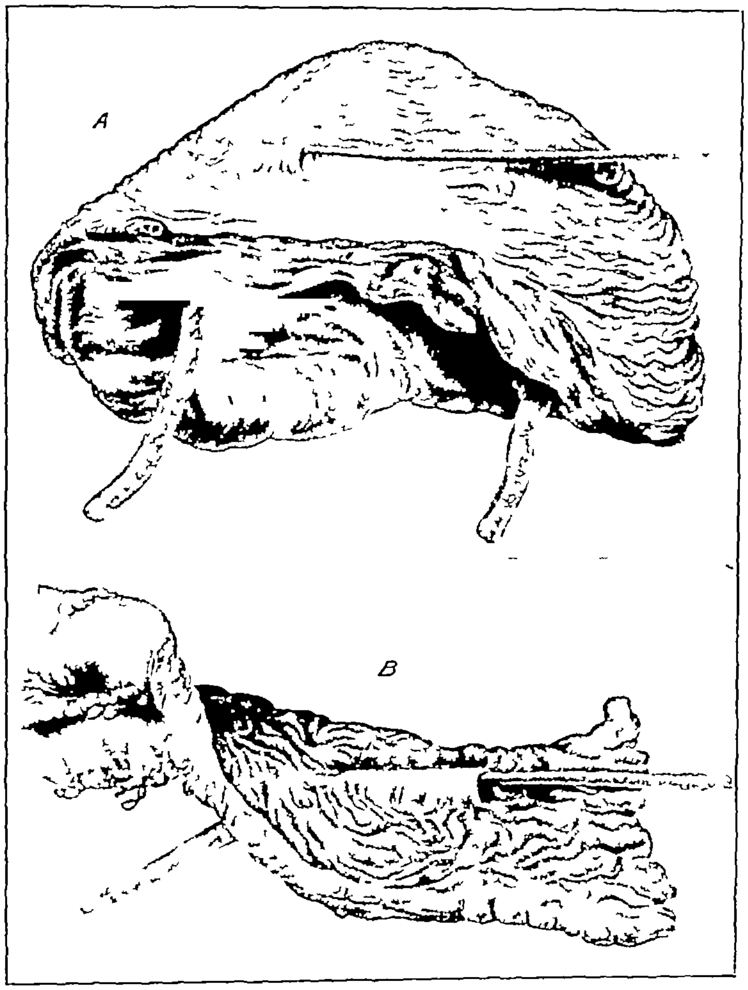

Fig 13—Comparison of normal valve in dog's bladder (*A*) with postoperative valve, following submucous implantation of ureter in a dog's large intestine (*B*) This represents the same specimen shown in Figure 12 *A* and *B*, in which the valve acted perfectly, without leakage

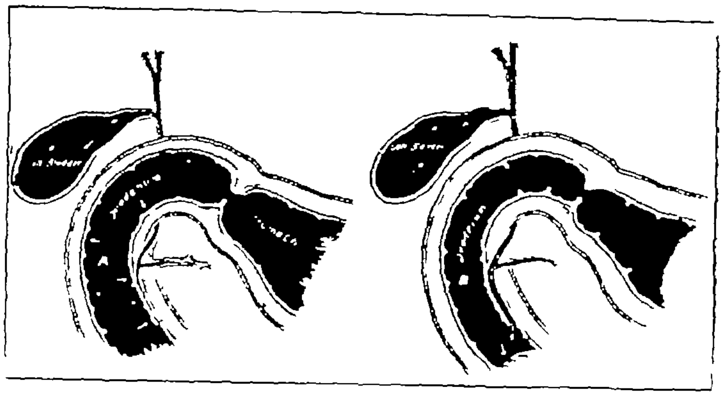

Fig 14—Scheme showing theory as to the probable function of the gallbladder *A*, intra intestinal pressure, being normally greater than pressure in the liver ducts, closes the valve during intervals of digestion when bile flows into gallbladder, *B*, intra intestinal pressure is diminished or released in the wake of a peristaltic wave, this permits the opening of the valve, and a consequent outpouring of bile

In connection with this subject, I wish to call attention to two other points 1, Every surgeon has noticed that the common bile duct becomes dilated sometimes to a large size after the gallbladder has been removed or has been functionally destroyed by contraction down on gallstones In one instance of contracted gallbladder I found the common duct dilated to fully three-fourths inch in diameter, which caused me to open the bile duct looking for a duct stone, notwithstanding the fact that the patient had shown no jaundice or other evidence of common duct obstruction Nothing was found in the duct, and the mouth was

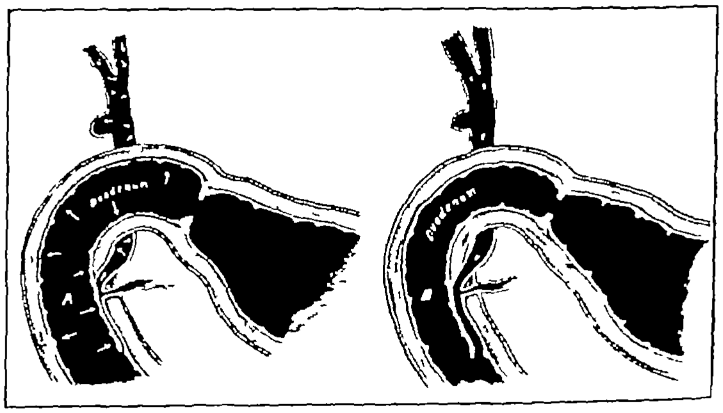

Fig 15—Diagram illustrating a theory as to the probable cause of dilatation of the common duct following removal or destruction of the gallbladder *A*, during intervals of digestion (as at night) the valve is closed by intra intestinal pressure, thereby producing an equal pressure in the ducts causing them to dilate, *B*, during digestion, local intra intestinal pressure is intermittently released in the wake of peristaltic waves, permitting the emptying of the dilated bile ducts, just as the normal duct and gallbladder is emptied

well open into the duodenum 2 When a gallbladder fistula is established with the surface, all observers have noticed that the bile flows more freely during the night or during intervals of digestion than during digestion In other words, the bile flows into the gallbladder during the intervals of digestion The gallbladder seems to serve as an elastic safety reservoir which takes off the pressure from the bile duct during certain times of the day It seems likely that this may be explained on the basis that during active digestion peristaltic waves are intermittently passing down the intestine In the wake of these waves there follows a diminution of the intra-intestinal pressure, which permits the temporary flow of bile from the duct As soon as the wave has ceased, the normal intra-intestinal pressure is resumed and the valve is closed During long intervals of digestion, and particularly during the night the peristaltic waves are few The intra-intestinal pressure is more nearly constant, and the bile is forced out into the gallbladder, or out through a gallbladder fistula as the case may be (Fig 14 *A* and *B*) If the gallbladder has been removed or destroyed, an equilibrium of pressure in the gall ducts and intestines is established in the long intervals between peristaltic contractions, with the result that the full degree of intra-intestinal pressure in the bile ducts during the intervals of digestion produces permanent dilatation of the duct (Fig 15 *A* and *B*)

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[3] The details of these experiments were printed in The Journal A M A, Feb 11, 1911, p 397

[4] The specimens resulting from these experiments were exhibited to the Section on Surgery at the St Louis Session of the American Medical Association, 1910

In connection with this problem, it is well to mention the fact that the urine coming into the bladder through the normal valve is seen to come in jets of several drops at a time, while it passes through a ureteral catheter with a steady drip Is it, therefore, not probable that the jets seen in the first case are due, partially at least, to the rhythmic contraction of the bladder which at certain intervals increases the intravesical pressure and temporarily closes the valves, while, when the catheter is passed up into the ureter, the bladder contraction is not operative on the flow?

ABSTRACT OF DISCUSSION

Dr. Edward Martin, Philadelphia As to the statement in regard to inelasticity of the belly wall, it is one of the most elastic of all structures, to wit the circumference changes before and after dinner, as shown by the relative bigness of your garments As to intra-abdominal pressure on operation, with the first admission of air there is a cavity hence a negative pressure. The pressure is constantly varying, at times it is life-threatening from its effect on the circulation and the respiration Every vital process and every reparative process depends on the freedom and rapidity of the blood supply, and probably the underlying reason for abnormal abdominal conditions associated with ptosis is a circulatory interference and not a mechanical interference with the progression of the intestinal contents Of all deceiving factors, the roentgenogram ranks among the first. Ochsner has shown that any viscus may be in any position and function normally if the blood supply is not interfered with

Concerning the mechanism of the valves, going back to fundamental principles, the law of sphincters is that when irritated they contract Flaccidity is almost unknown, the anal, the pyloric, the cardiac, urethral sphincters give us trouble only by contracting In the first few months of life the cardiac valve is normally incompetent, a period for quantitative errors of judgment Later, if abnormal, it becomes permanently tight. Any neighboring pathologic condition may cause it to grip tight, the sphincter having its own centers which respond in only one way An incontinent ileosphincter is extremely rare. They all yield to continued abnormal back pressure. The cecum is usually empty and the stimulus to the cecum to contract is a sudden, violent gush from the ileum A slow ooze, as through a spasmodically contracted sphincter, will not give this stimulus I cannot see the mechanism of a vacuum formed in an absolutely soft gut It is probable that the beneficial effects of operation are not from tightening a loose sphincter, but from loosening a spasmodically tight sphincter We are cursed by pylorospasm How do we cure pylorospasm? Usually by curing the lesion reflexly responsible for it, and sometimes by paralyzing and putting out of service the muscle The rule of the sphincters is that they are always tight Why is a patient with chronic appendicitis constipated and toxic? Because he has a loose sphincter? No, because he has a tight sphincter The lower ileum is the portion where the intestinal contents remain longer than in any other part of the intestinal canal With a teasing chronic appendix the reflex spasm prevents that rapid distention of the cecum which excites cecal contraction Why do these patients get well of their constipation by the taking out of a fibrosed appendix? And why do so many of them suffer from pylorospasm? Because the sphincters work together that is the ileocolic and the pyloric We have had no success in implanting the ureters, and we have done it very carefully, no success because there always occurs a narrowing at the point of implantation and an ascending infection Sweet has attempted it many times In only two reputed cases has it been done successfully without a segment of the bladder wall I agree that the mechanism of the vesical sphincter of the ureter is in part, a mechanical one.

ORGANIC CHANGES IN THE CENTRAL NERVOUS SYSTEM PROBABLY DUE TO FOCAL INFECTIONS *

GEORGE W HALL, M D

CHICAGO

It is with a full knowledge of the vulnerable points which may be cited in reasoning from cause to effect that I present the history of these cases which compose the nucleus on which this paper is based However, clinical evidence and resulting treatment in other cases not here reported encourage me to present this article, for I realize the fact that the chain of infection leading from the tonsils and teeth to the central nervous system in these cases is not complete, since two of the patients are still living

Orr and Rows[1] state that infections may ascend from deep foci of infection through the lymph channels which surround the spinal nerves and roots, and extend to the pia and there set up inflammatory reaction They have observed such conditions in staphylococcus infection They state that toxins can spread along the roots of these nerves without injuring the individual nerves They have shown that bedsores may produce degeneration in the lumbar enlargement, and sores on the arms have produced degeneration in the posterior columns of the cord on the same side as the focal infection They have demonstrated similar changes in the lower portion of the cord arising from a pelvic cellulitis and renal abscess While in their experience the dorsal columns of the cord have more often become involved than other regions, yet they have explained that these toxins may so spread as to produce changes in the anterior radicular fibers, and also in the lateral columns of the cord Such changes, according to their statement, are the direct result of absorption from some peripheral septic focus

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* Read before the Section on Nervous and Mental Diseases at the Sixty Eighth Annual Session of the American Medical Association, New York June 1917

[1] Orr and Rows Brain 4, 1906

Walker[2] described three cases in which an acute ascending paralysis occurred in the course of a chronic cystitis, and suggested that the cord lesion was due to an extension of inflammation along the nerves from the bladder That such conditions may exist is verified in tetanus and rabies, which no doubt spread to the cord by way of the nerves

Marie and Morax cut the nerve of the limb of an animal and injected a lethal dose of tetanus organism into the animal's paw, and no convulsions followed

Homen and Laitinen, after injecting streptococci into the sciatic nerve, traced the organisms to the meninges of the cord

Pirrone experimented in like manner with the pneumococcus, and found changes in the cord In the peripheral nerves, spinal roots and cranial nerves, there is a constant stream of lymph ascending toward the central nervous system, the main current of which lies in the inner meshes of lymph spaces of the perineural sheath Through these passages, according to this author, the toxins no doubt reach the central nervous system and may spread in the lymph spaces of the pia and arachnoid to distant points Changes in the central nervous system, as we all know, frequently accompany primary anemia, less often secondary anemia, occasional chronic uremia, diabetes, etc It is generally accepted that these changes are due to toxins rather than actual organisms The source of these toxins, especially in pernicious anemia, may be found in the gallbladder, appendix and other foci, so that it is just as reasonable to believe that focal processes in the teeth and tonsils may produce similar changes

It has been definitely determined that a primary lesion of specific origin on the skin may produce toxic conditions in the spinal fluid, even before the Wassermann test shows a positive reaction Such conditions can arise by direct transmission through the peripheral nerves from the focus of infection to the meninges of the cord

Lugaro states that the stronger and more local the action of the toxins, the more often does secondary change take place, while a diffuse and weaker toxin produces a purely primary degeneration

In a series of eight cases, comprising lesions of varying nature and situated in different parts of the body, Orr and Rows found in each case a cord lesion much more intense in the segment of the cord corresponding to the nerve supply of that area

REPORT OF CASES

I report three cases which I believe demonstrate the work of these investigators

Case 1—R. M, aged 55, was referred to me by Dr J L Miller in the latter part of September, 1916 His present trouble commenced about eighteen months previous, when he complained of pain in the left shoulder and cervical portion of the spine. This pain continued with exacerbations at times for a period of one year, and then disappeared About six months after the onset of his first symptoms he noticed that his right hand was becoming shaky when he tried to sign his name In the spring of 1916, he noticed a weakness in the right leg and small blisters on the sole of the right foot, at times he experienced cramps in the muscles of the right calf

Examination by Dr Campbell in 1915 revealed large tonsils, and pyorrhea of the two lower incisors, the sinuses were normal

My examination revealed an atrophy of the shoulder group muscles on both sides, more on the right, with an atrophy of the muscles of the arms and forearms, and also of the thenar and hypothenar muscles of the hands, these atrophic changes being more pronounced on the right side. Marked fibrillary twitchings were present in these different regions The left lower extremity was practically normal, the right lower extremity was spastic, with increased reflexes and a positive Babinski reflex, there was no atrophy of muscle in the lower extremities, and no sensory disturbances over any part of the body The optic nerve was normal There were no bladder disturbances The abdominal reflexes were present

We deemed it advisable to exclude syphilis, therefore the patient was sent to St Luke's Hospital and spinal puncture made The spinal fluid was normal in every particular and the blood Wassermann test negative. We made a diagnosis of degenerative changes in the spinal cord, involving the anterior and lateral portions in the cervical region of the spinal cord We recommended that a Roentgen-ray examination be made of the spinal vertebrae Changes of an ostearthritic nature were found, especially in the cervical portion, and to a less extent in the lumbar portion of the cord

Case 2—Mrs S, aged 58, was referred to me by Dr John L Porter in January, 1917 She stated that her present trouble began about September, 1915, when she experienced some pain in the lumbosacral region, and some stiffness in the [illegible] muscles of the left leg About one year ago the calf of the right leg became stiff and she still has that feeling of stiffness in both lower extremities A few weeks after the onset of this trouble she noticed a weakness in the extensor muscles of both feet, stating that she could not raise the toes from the floor normally She has never suffered any pain in the lower extremities The weakness in the lower extremities gradually increased until, at the time of examination, she was compelled to support herself with crutches in order to walk around the house

Examination showed some atrophy of both lower extremities below the knees, more marked on the right than on the left, a partial foot drop on both sides, with a possible Babinski reflex on the right. There were no fibrillary twitchings, the knee-jerks were present and the Achilles reflex absent, there were no sensory disturbances

We made a diagnosis of organic change in the anterior portion of the spinal cord in the lumbar region, and suggested spinal puncture and blood tests Both fluids proved to be normal We further suggested that roentgenograms be made of the spinal vertebrae, which revealed positive arthritic changes A history of pyorrhea was obtained, on account of which six teeth had been extracted in August, 1916 A pelvic examination was made by Dr T J Watkins at my request, and the report was negative A laparotomy had been performed fifteen years previous for the removal of a benign tumor of the right ovary The only apparent cause for the changes in the central nervous system of this case originated in the teeth

Case 3—Through the courtesy of Dr Peter Bassoe, I wish to report a third case which came under his observation for the first time, June 8, 1912 Single man, aged 25, of excellent habits and with a negative venereal history, a history of nephritis following influenza when 11 years old, in April, 1911, had a slight swelling of the knees and ankles for about two weeks The patient was apparently well after this attack until March, 1912, when nodules developed in the skin of the legs and swelling about the ankles (erythema nodosum?) In April, he had occasional chills, followed by a temperature rising to 102 F These chills occurred at first once a week, then twice a week Late in May, he began to have attacks every few days, consisting of vomiting followed by diplopia These symptoms were followed by numbness in the left leg and slight difficulty in swallowing For some time previous, the gums had been swollen and the teeth sore

Examination revealed right external rectus paresis, slight right facial paresis of the right side, loss of pain and temperature sense over the right trigeminal area, absence of right corneal reflex, analgesic areas on the left side of the chest and abdomen and in places on the left arm, tactile sensation normal, tendon reflexes normal June 9, he was admitted to the hospital with a temperature as high as 102 F, which continued for five days, when it returned to normal He had almost a continuous hiccup and repeated vomiting attacks during the first four days in the hospital He received treatment for pyorrhea by Dr Frederick B Moorehead The Wassermann test was negative The patient gradually improved could again walk although he staggered somewhat, and a slight diplopia persisted In August, 1912, he had a relapse for a time and when examined again, presented analgesia of the right side of the face and the entire left side of the trunk and extremities The right arm and leg were slightly weaker than the left He had a bilateral ankle clonus, more marked on the right side, other tendon reflexes stronger on the right side He again improved after his mouth had been treated In December, 1912, left hemiplegia quite suddenly developed, and it was definitely stated that this attack was preceded by an aggravation of the pyorrhea In June, 1913 he returned to the hospital for a week when examination showed a right trigeminal anesthesia left spastic hemiplegia right hemianalgesia and thermanesthesia

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[2] Walker Lancet London, March 11 1905

Nov 4 1913 he became stuporous and had dysphagia, bilateral Babinski reflex and ankle clonus, no voluntary movement of either extremity, abdominal reflexes absent, right corneal reflex absent and left present He developed a rise of temperature, and signs of pneumonia appeared He died Nov 6 1913

A necropsy was held, November 7, by Drs F R Nuzum and Peter Bassoe The only finding outside of the brain was a bronchopneumonia The brain revealed moderate edema of the pia the right half of the upper portion of the pons was distinctly softened A pipet was introduced to secure material for culture No pus was present. Subsequent examination of the brain after hardening with liquor formaldehydi revealed a distinct nonsuppurative inflammation in the softened part of the pons, chiefly characterized by large accumulations of mononuclear cells about the vessels

COMMENT

The history of these cases shows not only a history of focal infection, but also in two of the patients slight arthritic changes in the vertebrae, most pronounced at those points which correspond to the most definite changes in the central nervous system

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ABSTRACT OF DISCUSSION

Dr H T Patrick Chicago I am far from wishing to deny involvement of the central nervous system from focal infection but I think Dr Hall has hardly proved his case In all his cases he found evidence of arthritis, and I do not see the necessity for assuming infectious involvement of the central nervous system to account for the symptoms These could all be accounted for by secondary involvement of the nerve structure by way of the arthritides In the last case we are in doubt whether or not there was softening due to vascular occlusion If these cases were due to teeth and tonsils, they were hemogenic, which had nothing to do with direct invasion of the nerve trunks and thence by way of nerve roots to the spinal cord This route is as yet hypothetic, but this does not prevent it from being an attractive field for investigation and I am glad that Dr Hall has called attention to it My own experience has been that in the vast majority of these cases what seem to be neuritides are really arthritides

Dr J P Munroe, Charlotte, N C I am inclined to agree with the last speaker Most of these cases can be explained otherwise than by an involvement of the central nervous system

Dr A. L. Skoog, Kansas City, Mo It is interesting to note that we find infections of the central nervous system secondary to other foci in the body In these cases I am inclined to think they are not conclusively proved I believe the fault rests on the bacteriologic examinations, which have not been completely conducted

Dr G W Hall, Chicago I am entirely satisfied in my own mind as to the relation between cause and effect in these cases I think in the course of two or three years these same gentlemen will have changed their minds as expressed today In the first case the patient was taken to a hospital where they found, according to the roentgenograms, changes in the cervical vertebrae, as I have reported The same patient was taken to a different hospital, and Dr Billings was called in and gave an independent opinion He declared that there were no arthritic changes in the spine, and felt that the changes were of a multiple sclerotic nature and that the primary infection came from the teeth This opinion was independent of mine

A REPORT OF A GROUP OF ONE HUNDRED AND TEN CASES OF POLIOMYELITIS

FROM THE ACUTE ONSET TO THE PRESENT TIME*

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The group of 110 cases of poliomyelitis on which this report is based, with fifteen additional cases, represents the result of the study of an epidemic in a suburb of 35,000 inhabitants of New York City during the summer of 1916 These 110 cases were all isolated in hospital accommodations where each patient could be continuously observed

The origin of the disease in this community was definitely traced through a carrier coming from an infected household in Brooklyn The district first infected was an Italian community, in which particular section forty-two cases developed This community was somewhat crowded, although in a comparatively clean neighborhood

The first case developed on July 13 and the last one on Oct 25, 1916 No other cases have developed from that time up to the present date

Early Diagnosis—The majority of the cases were somewhat similar and developed as follows The child was said to have been sick from one to four days with fever, usually vomited and frequently gave a history of pain in the head, neck, back or extremity On examination, the child was found to be lying on its side, with the head thrown back, quiet or asleep When aroused it was usually irritable In 81 per cent of the cases there was stiffness of the neck

Other evidences of the disease were found to be an abnormal condition of the knee jerk, and disturbances of reflexes throughout In addition to these clinical findings, the diagnosis was corroborated by a spinal fluid examination These specimens were all examined at the von Wedel Laboratory of the New Rochelle Hospital, and the diagnosis was confirmed in many doubtful cases by this examination A lumbar puncture was made in eighty-two cases

One course of the disease frequently seen was that in which the child was sick for a day or two and then apparently better, being allowed to get out of bed, after which the fever returned and the typical symptoms developed It may be here remarked that there was but one case resembling the classical picture so often described in textbooks, of the child going to bed perfectly well, taken ill during the night and found to be paralyzed in the morning

There were twenty-five cases of suspected poliomyelitis in which the spinal fluid gave negative findings In each instance, the cell count was under 20

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* Read before the Section on Orthopedic Surgery at the Sixty Eighth Annual Session of the American Medical Association New York, June 1917

The fluid was normal, Fehling's always unreduced The fluid was always clear, and there was no increase in albumin or globulin In none of these twenty-five suspected cases of poliomyelitis giving negative spinal fluid findings did poliomyelitis subsequently develop On the other hand, in none of the cases in which the spinal fluid gave positive findings was a mistaken diagnosis made — all developed poliomyelitis From these data, it is fair to assume that a definite early diagnosis can be made by carefully studying the clinical symptoms in conjunction with the laboratory findings of the spinal fluid

During the first week nineteen patients were admitted to the hospital In one month there had been eighty-one patients admitted By October 25, 110 patients had been admitted, the time of detention in each case being not less than six weeks There were fifty-six male patients, or 50 9 per cent, and fifty-four female patients, or 49 1 per cent There were only three colored children, or 2 7 per cent This is undoubtedly due to the fact that a small proportion of the population are colored people

The ages varied from 2½ months to 45 years Those patients under 5 years numbered eighty-five, or 77 3 per cent, from 5 to 10 years of age, fourteen, or 12.7 per cent, from 10 to 15 years, eight, or 7 3 per cent, over 15 years, three, or 2 7 per cent

It is interesting to note that in eight families there was more than one case Also, that the houses having more than one case, not in the same family, were six in number, so that no fewer than seventeen cases of the disease might be assumed to have been contracted from other members in the same house, a percentage of 14 5

On further study of this subject, however, we learn that in but six of these seventeen cases did a sufficiently long period elapse to justify the conclusion that the disease was contracted from other members of the same household, as explained in the accompanying table

CASES OCCURRING IN SAME HOUSEHOLD

Name	Date of Onset	Name	Date of Onset
J C	July 24	B T	September 4
T C.	July 26	S G	July 13
J H	July 27	M M.	July 18
P H	September 8	J P	July 19
P F	August 9	A P	August 1
T F	August 10	M D	August 3
J P	August 9	D C	July 21
I P	August 10	A L	July 26
G P	August 17	T O	August 5
J H	August 24	W D	August 7
A. H	August 26	R H	July 31
T N	August 11	W S	July 31
H N	August 14	R T	August 10
D S	August 15	H S	August 4
J S	August 21	M H	August 15
I T	August 26		

In one family three out of seven children contracted the disease, two of whom died In another family, two of three children developed the disease In another, two out of five and in a fourth family, two out of four children In a fifth family, two out of six children, and in two other families both of the children in each family were affected

Of houses in which more than one case occurred not in the same family (tenement and two family houses) there were three cases each in two houses and two cases each in three houses This gives us a total of twenty-nine cases, or 26 per cent, all of which were associated with one or more cases in the same family or house

Paralysis —Paralysis occurred within the first few days of the disease The average time of the onset of the paralysis was the fourth day The percentage of paralyzed and nonparalyzed patients was from fifty-eight to forty-two The day on which the largest number of cases of paralysis occurred was the third day The result of my observations led me to expect a recovery without paralysis, if the patient showed no signs of it within the first eight days of the disease

It is of interest to note that eight patients in whom facial paralysis developed had no other paralytic involvement, and but two of the other paralyzed patients had facial involvement Deducting the patients who died, 55 per cent of the paralyses involved the lower extremities

In studying the relation of the paralysis, both in degree and extent, to the cell count in the spinal fluid, I found that there is nothing to indicate either the type, degree or extent of paralysis by this means In some cases, in which the paralysis was very extensive, the cell count was low, as in Case 2, cell count 43, Case 5, cell count 80, Case 7, cell count 65 In cases in which the paralysis was nil, the cell count was high, as in Case 46, cell count 265, Case 83, cell count 380, Case 84, cell count 392, Case 91, cell count 880, Case 107, cell count 1,160 In taking an average of the cell count, I have found that it did not average as high in the paralyzed as in the nonparalyzed patients

It may also be here stated that the degree of temperature in no way indicates the amount of paralysis which may or may not follow

It was occasionally noted that shortly after admission the child would become quite rigid with tetanic spasms These patients recovered without paralysis

Deaths —There were nineteen deaths, or 17 3 per cent One of these patients died of bronchopneumonia on the twenty-third day of illness With the exception of two other patients, all died within the first five days of the disease, so that I learned to look for recovery, provided the child did not die within the first few days of the acute attack

A large majority of the patients died from respiratory paralysis With one exception stupor set in early, the temperature running from 102 to 105 F The majority of the patients, also, had difficulty in swallowing — involvement of the glossopharyngeal nerve Stupor and inability to swallow were invariably looked on as precursors of death

Immunized Serum —Fifteen patients were treated with immunized serum Administration was begun in each patient at the onset of the disease (the first to third day) Two groups of cases were selected for treatment, namely, the first, the nonparalyzed patients with but mild symptoms, the other, the severely affected patients Seven were selected for the first group, eight for the second

Of the seven nonparalyzed patients, but one subsequently developed paralysis It was at first thought that this case was rather promising and that the serum in all probability had been a factor in preventing paralysis from occurring in the other six cases In this relation, however, in studying twenty-nine other patients who were not paralyzed and who did not receive serum, only five developed paralysis subsequently This percentage is practically the same as might have been expected had serum been used, so that I feel justified in concluding that the administration of serum in the nonparalyzed patients does not materially affect the prognosis In the eight severely prostrated patients, six died, and of the two who recovered, one gradually became more severely paralyzed the other recovered without paralysis It is very doubtful, therefore that serum affected in any way these severely paralyzed patients

Epinephrin—This was administered in three patients without any apparent beneficial effect

After-Care—All the patients, without exception, on their discharge from the hospital were referred directly to an orthopedic clinic which was organized specifically for this purpose To this immediate and continuous supervision and treatment I attribute in great part the excellent results which are now being obtained The plaster of Paris fixation splints which were used in the hospital have been continued in the clinic with the same object in view

That which has most impressed me in regard to the recovery from paralyses is the fact that long continued rest extending if possible, over six months' duration in a light fixation splint, such as a posterior plaster of Paris shell, has been the one greatest factor in obtaining the best results

Massage was begun within two months after the acute onset It was soon learned that patients so treated did not do as well as those in which the massage was postponed until the third or fourth month

The greatest difficulty has been to keep the limb at perfect rest after it has recovered sufficiently to allow the child to get about In those cases in which it has been practically impossible to keep the children off their feet light, carefully adjusted braces have been supplied These braces have been furnished simply to prevent deformity in carrying the body weight Overfatigue in these cases has been noted time and time again, with resultant arrest of progress in the return of function

In paralysis of the deltoid, I have found the most convenient and comfortable brace to be that of a plaster of Paris splint molded to the side of the chest and extending out at right angles to support the arm This is bandaged to the body and has proved a practical application

Muscle Testing by the Balance Weight—At first, I regarded this measure with a good deal of scepticism My opinion, however, has now changed since I have learned that in patients on whom it can be applied, the physician will have a much more definite knowledge of the progress of the case and can then more intelligently advise regarding muscular activities I have in several instances, for example, passed opinion on the extent of the progress of a case by an ordinary manual examination, after which muscle testing by the balance weight having been made, I have recognized decided errors which otherwise it would not have been possible to check up

A large majority of the patients affected, namely 77 per cent, were under 5 years of age This necessarily eliminated all but 23 per cent of the patients, some of whom were not paralyzed, and other of whom died, leaving a small minority of patients in whom muscle testing by the balance weight was applicable This muscle testing should be made by the same individual each time in order to be accurate

Muscle Training Exercise—The exercises have been attempted in all the patients My experience has been that these exercises are of great value when they can be closely supervised by both the physician and nurse When, however, this supervision must be left in great part with the parent, the results are not nearly as good, although it may be said that they appear to be better than would be expected if no such muscle exercises were undertaken I have not employed electrical currents of any kind in the treatment of any of these patients

Bath Exercises—A method which I have found to be of great advantage, both in examination and in muscle training exercises, has been bath exercises For this purpose, I have had installed in our clinic a bath 4 feet by 3 feet In this bath, the slightest response of returning power in a muscle or group of muscles can be detected and recorded In addition to this, the patient is encouraged to attempt and obtain motion which would otherwise be impossible — and this without the slightest overfatigue

Thirty patients have been discharged from our clinic, having completely recovered and being in need of no further supervision This number represents 33 per cent of all the patients, exclusive of those who died To these, I may add another 26 per cent who will in all probability be discharged as cured within six months' time This leaves 41 per cent who will require further treatment Of these patients, 26 per cent are able to walk comfortably, but 15 per cent are unable to do so Of this 15 per cent, however, one half of the patients are 2 years old or under, which accounts in part for their disability

CONCLUSIONS

1 A reliable early diagnosis can be made in a large majority of the cases

2 We are unable to prognosticate regarding the subsequent severity of the paralysis, either by the acuteness of the febrile stage or any laboratory findings thus far submitted

3 When death occurs, it takes place with few exceptions during the first few days following the acute onset

4 Treatment outdoors during the convalescent stage is most beneficial

5 In my experience, immunized serum treatment has not proved efficient

6 Although there is nothing to disprove the possibility of an insect carrier, the evidence herewith submitted would sustain the assumption that poliomyelitis is a contagious disease

7 Although muscle testing by balance weight is applicable in only a small percentage of the patients, in these patients it is of much value

8 Continuous supervision is most important

9 Continued electrical treatment is not essential for the recovery of lost muscle function

10 Bath exercises in relation to muscle training form one of the most practical and useful lines of treatment that can be followed out

11 Complete rest extending over six months is one of the most important factors in obtaining perfect return of function

12 Overfatigue is of the greatest detriment to improvement, and is most difficult to guard against

13 Braces should be made as light as possible and should be supplied immediately when body weight-bearing tends to produce strain or deformity

14 The percentage of paralyzed and nonparalyzed patients in an epidemic may be expected to be about 58 per cent paralyzed, 42 per cent nonparalyzed, or, excluding those who died, 49 per cent paralyzed, and 51 per cent nonparalyzed

40 East Forty-First Street

THE ORTHOPEDIC TREATMENT OF ACUTE AND CONVALESCENT POLIOMYELITIS *

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So much has been written during the past year of poliomyelitis that one naturally hesitates to add to the literature on the subject, and yet the feeling of certainty that the problem is much bigger than anything so far written or said, and the hope that out of our experiences at the Seaside Hospital there may come a little help in the efforts to meet the challenge of this terrible disease, impel me to briefly report the results of the work done in that institution It is, of course, to be understood that this is a preliminary report only

I feel quite confident that soon the questions of specific agency and the mode of transmission of the disease will be settled, but so far orthopedic surgery is the one branch of medicine that has contributed something definite to the problem of curing crippled and deformed children Out of the maze of uncertainty and wild theories, one fact stands out clearly We have prevented and corrected deformities, and we have hastened the restoration of muscle power

That is good, but the time has now come, if we are to be of the most service to humanity, for us thoroughly to recognize the fact that a large percentage of the deformities that heretofore have given us the opportunity of appearing in the more spectacular rôle of operative surgeons would not have occurred if the proper treatment had been carried out in the acute and subacute stages Clever operations designed to correct deformities is not enough, we must prevent these deformities, and what is of vastly more importance, we must prevent permanent paralyses

We must not be satisfied when in one, two or three years, by our muscle reeducation, we have opened up new paths of conduction and thus brought about a partial or complete restoration of muscle power We must so treat the child in the acute stage that the normal paths of nerve conduction will not be destroyed

While the major part of this paper is a report of the work done at the Seaside Hospital in the treatment of the disease in what is known as the convalescent stage, I feel that by far the most important thing I can do is to insist on a plan of treatment of the acute stage which I think will render much of this tedious and uncertain work unnecessary

I wish to observe, first, that the division of the ordinary spinal type of the disease into the acute, convalescent and chronic stages is not sufficiently accurate and does not correctly correspond with either the pathology or the clinical course of the disease Rather, it seems to me that a better division would be into acute, subacute, convalescent and chronic stages If I were obliged to make an arbitrary time division of these stages, I should say that the acute stage covers the first four weeks and corresponds to the active inflammatory process in the cord, and lasts until the cells that have been disabled by effusion have recovered The subacute stage begins at the fifth week and extends to the time when the cells that have been disabled by light hemorrhage have cleared up This I should place at the end of four months The convalescent stage begins at the fifth month and extends to the time when the motor cells that have been disabled by deep hemorrhage have recovered This I should place at the end of two years The chronic stage begins at the third year and represents the permanent paralyses of muscles receiving their nerve supply from the motor cells destroyed by toxemia

A knowledge of the pathology of the disease and of the physiology of the nervous system would seem to indicate that the proper treatment of the acute stage is the inhibition of afferent impulses to the sensory cells of the central nervous system, thus making it impossible for the diseased motor cells in the anterior horn of the cord to be stimulated through the reflex arc A motor cell that is diseased through effusion or hemorrhage should receive the same rest that we attempt to produce in any other diseased structure To produce this motor cell rest it is not sufficient to inhibit the afferent impulse from the muscles involved or even of the member involved All afferent impulses from the entire body, those arising from the surface of the body as well as from the deeper structures, should be checked There can be no question that cells which are disabled by effusion and which should resume their function by the end of the acute stage, if they receive the proper rest, are hindered in their recovery and further disabled by attempts to functionate And in the same manner cells which are disabled by light hemorrhage and which should resume their function by the end of the subacute stage are further diseased by use and converted into the more seriously diseased type of cell

I think it is agreed that the cells destroyed by toxemia form a small percentage of the cells affected, probably not over 10 or 12 per cent, and yet we have had permanent paralyses vastly in excess of that What does that mean? It means simply that by our lack of understanding of the conditions present and the indications to be met, we, by our meddlesome efforts to assist Nature, as we think, are pouring impulses, or allowing them to be poured, into a diseased cell that has its outlet blocked, thus either destroying it entirely or converting it into a more seriously diseased condition Any end-result that carries a permanent paralysis in excess of the cells destroyed by toxemia is a sad commentary on our treatment or lack of treatment Early in the work at the Seaside Hospital in treating the disease in the subacute stage, we proved to our entire satisfaction the beneficial results following complete immobilization of the entire body I am quite sure that the results will be even more striking if this plan of motor cell rest is applied in the acute period Our method of obtaining this result in the subacute stage was by encasing the child in a plaster bed, separated so that it could be removed if necessary It was really remarkable how comfortable it was to the patient and how much struggling and fear it overcame I have not had a large opportunity of using the method in the acute stage, but in the future if the chance should come, I shall treat every child, as soon as the diagnosis is certain, by immobilization in a plaster bed, putting it in a dark, quiet room, covering the ears to keep out all sounds, and with a careful attention to diet and excreta

CONVALESCENT STAGE

Seaside Hospital was opened, Sept 18, 1916, for the hospital after-care treatment of the disease It gre out of the desire of the "Brooklyn Children's Aid Society and some public spirited men to help meet the emergency that followed the epidemic of last summer and the desire of Dr Truslow and myself to put into practice some ideas we had as to the proper treatment of the disease, chief of which was the firm belief that in the seriously paralyzed children the treatment should be hospital rather than home or dispensary There have been admitted to date 146 children, all seriously paralyzed Twenty-four of these at admission were still in what we consider the subacute stage It is worthy of note that these have made a more satisfactory improvement than those admitted later in the course of the disease

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* Read before the Section on Orthopedic Surgery at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

TABLE 1—RESULTS IN ONE HUNDRED AND FORTY SIX CASES

	No
Discharged wearing braces and practically recovered	5
Left within a day or two of admission	5
Here too short a time to be included in an estimate of our results	10
Cases in hospital long enough to be included in our estimate	112
Cases of the encephalitic type—"spastics	14

TABLE 2—DISTRIBUTION OF PARALYSES

	No
Paralysis of one arm	7
Paralysis of both arms	6
Paralysis of one leg	14
Paralysis of both legs (paraplegia)	68
Paralysis of one side (hemiplegia)	0
Completely paralyzed (both arms both legs back abdomen neck and chest)	17
Paralysis of one side of face	2
Paralysis of speech center (one has perfectly recovered one just beginning to say a few words)	2
Backs involved	86
Backs involved with marked curve	42
Abdomens involved	66
Abdomens involved with large globular bulging of some part of wall	7
Paralysis of sphincters	5

In the list of cases in Table 2 it should be particularly noted that we had no case of hemiplegia, though we have had three cases with the arm of one side and the opposite leg paralyzed

TABLE 3—DEGREE OF IMPROVEMENT

	No
Very great improvement	64
Fair improvement	42
No improvement as yet	5
Died from pneumonia	1
Abdomens improved	61
Of these very great improvement in	5
Abdomens unimproved as yet	5
Backs improved	86
Of these very great improvement in	8
Of the 14 spastic cases	
Improved	8
No improvement as yet	4
Died both from pneumonia	2

On admission, the child is carefully examined and the condition of every muscle thus recorded on the history chart

N normal

—1 weak but can lift and sustain moving segment against gravity

—2, can lift but cannot sustain moving segment against gravity

—3 cannot lift moving segment but can assist

—4, cannot assist, but examining fingers feel response in tendon

—5 completely paralyzed.

Table 4 shows the present condition of some of the more important muscles that were marked — 5 on admission

It will be noted that of these important muscles we have had the most marked improvement in the deltoids and the least improvement in the quadriceps The same rule we have found to hold in the case of these same muscles marked less than —5 on admission We feel particularly gratified in the improvement we have had in the deltoids In this connection we have found that all the muscles of the shoulder recover in about the same degree as the deltoids with the exception that the external rotators, supraspinatus, infraspinatus and teres minor, seem to be slower This fact will be noted later Of forty-six paralyzed shoulders, thirty-two of which are noted in Table 4 as —5 deltoids, all but two already show a marked improvement, and we feel quite sure eventually will be useful joints

TREATMENT

I have already discussed the problem of the treatment of the acute stage I repeat that the bringing about of a condition of motor cell rest is the thing to be desired If better methods than I have indicated can be thought of, they should be used However it is brought about, I am quite sure that it will mark the most important advance made in the treatment so far, and will save many children from the crippling and deforming results that heretofore have attended the disease

In the subacute stage the treatment is rest and support of paralyzed muscles and the prevention of deformities The same general rules are to be followed as in the treatment of the convalescent stage, with one exception

In discussing the treatment of the convalescent stage, which is the work that has occupied practically all of our time, the treatment followed and some of our more important conclusions are so related that it is impossible to discuss them separately I wish to observe that

1 The most frequent paralyses, in the order named, are anterior foot muscles, quadriceps, glutei, hamstrings, deltoids, hip flexors, internal rotators of the thigh, and external rotators of the shoulder

2 The treatment of the spastic cases is most unsatisfactory so far, but rest is indicated We have found that attempts at massage and muscle training are neither agreeable nor beneficial

3 A stretched muscle will not regain its tone This is very important and is the key to all treatment Every weakened muscle, the dorsal flexors of the ankle, the quadriceps, the deltoids, or the muscles of the back and abdomen should be treated with this fact kept in mind We attribute our results in the treatment of deltoids to the fact that the muscle has been kept in a relaxed position continually This we have done with a brace that elevates, externally rotates, and abducts the arm Whether the elbow is extended or

TABLE 4—PRESENT CONDITION OF MUSCLES MARKED MINUS 5 ON ADMISSION

Muscle	Number	Improved from —5 to —4	Improved from —5 to —3	Improved from —5 to —2	—5 to N	Unimproved as Yet
Deltoids	32	8	8	10	4	2
Glutei	69	24	19	9	9	8
Hip flexors	64	13	23	11	12	5
Quadriceps	84	19	27	20	8	10
Hamstrings	71	20	19	14	10	8
Gastrocnemius	16	6	2	3	2	3

flexed depends on the condition of the biceps and triceps.

4. Many muscles marked —5 on admission have been found to be cases of muscle fatigue and not true paralysis. This we have proved time and time again in the case of feet that have been in a position of valgus for four or five months. After putting the foot up in plaster for two or three weeks in position of marked dorsal flexion and inversion and then removing the cast, we have been surprised to find very good anterior and posterior tibial muscles.

5. Contrary to the plan of getting the children up as soon as possible we have followed the opposite course. We are convinced that many backs are injured because the child is put in braces and encouraged to walk. Even though some particular muscle or set of muscles can be braced sufficiently to allow the child to walk, it should not be done until it can be done without injury to other weakened parts. The effort should be to bring about a symmetrically recovered whole. If the child receives the proper massage and muscle training treatment, prolonged rest in bed can do no possible harm.

6. The treatment is hospital rather than home or dispensary. It is impossible to carry out the treatment that follows an appreciation of the law that a stretched muscle will not regain its tone by taking the child to a dispensary every other day. Casts will be loosened, braces will be allowed to slip and supports will need readjusting even with the most frequent watching.

If we have had any superior results in our work, it is not that we are more capable orthopedists than others or that our muscle trainers are more skilful than others; it simply represents the superiority of hospital treatment over any other plan that does not give the same careful and constant attention to details.

7. Electricity has no place in the treatment of the disease before the chronic stage, and even then we question its benefits.

8. Muscle training or muscle reeducation is very valuable in the convalescent and in the chronic stages, but not indicated in either the acute or subacute stages. It is illogical to attempt to build a new communicating line from brain to muscle while the probability remains that the old line will do the work. This is the one exception we noted in speaking of the treatment of the subacute stage. It may do harm if used early in the disease by stimulating the diseased motor cells that require rest to bring about their recovery.

9. A reference to our statistics will show that out of 112 cases, eighty-six showed a very weakened condition of the back muscles, and forty-two presented a decided curve. We feel quite sure that poliomyelitis, either frank or unrecognized, furnishes us the reason for most of our cases of scoliosis. We do not feel that faulty posture alone causes scoliosis. It may be the exciting cause, but in our opinion a careful examination into the history of the case will disclose the fact that there has been a predisposing cause, and with the exception of those cases caused by empyema, rickets or asymmetry, we believe this predisposing cause will be found to be due to a disturbed relationship between the muscles of the back from a previous attack of poliomyelitis. In speaking of the treatment I have attempted to state general principles rather than to give bare statistics.

CONCLUSION

I wish to repeat, as emphatically as possible, these two points:

1. Treatment of the acute stage should have in view the bringing about of a condition of motor cell rest.

2. All treatment of weakened or paralyzed muscles, in whatever part of the body they may be, should be based on the law that a stretched muscle will not regain its tone, and methods and appliances used that will keep the muscles in a position of constant relaxation.

TREATMENT OF ANTERIOR POLIOMYELITIS AT FORDHAM HOSPITAL[*]

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The recent epidemic of anterior poliomyelitis in this city with the tremendous number of unfortunate victims put a special task on the general hospitals in which orthopedic clinics are held. At the regular orthopedic hospitals, there was no need for making special preparations for treating the anterior poliomyelitic patients from this epidemic during the convalescent stage, for they always had such cases. The general hospitals, while they had orthopedic clinics, had to make special provisions to meet the vastly increased demands. As we had such a problem in Fordham Hospital, I will first review briefly the provisions made here.

FACILITIES AT FORDHAM HOSPITAL

There was no adequate room in the hospital to spare for administering treatments to these patients, but we had plenty of ground facing the Bronx Park. We constructed a large tent with a wooden floor and steam pipes (Fig. 1). The location of the tent outside of the hospital helped also to avoid the interference of these small cripples while passing through the general dispensary rooms. The advantage of a tent in summer need not be elaborated on, but, even in winter, we found that the sun shining on the canvas helped to warm the tent very quickly. During the entire season we missed treatments only about five times owing to the strong wind then prevailing, especially as the hospital is located on a high level surrounded by parks. We really feared the wind more than the cold. Few of the children ever caught cold in the course of the treatment. The inside of the tent is cheerful and has an excellent effect on the little children (Fig. 2). They run around and enjoy themselves and do their exercises freely.

Inside this tent we placed massage and examining tables and electrical apparatus. At one end we have special toys, large and small, for exercising the younger children and for making the time more pleasant for the older ones. Often an older child will help a younger one use the toys, and thus double benefit is derived. Such provisions, in my opinion, can be made in any general hospital on short notice.

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[*] Because of lack of space, this article is abbreviated in The Journal by omission of the illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

The treatments are given by experienced masseuses and muscle educators At least one physician, a member of the orthopedic staff, is always on duty in the tent to see that the massage and exercises are properly administered not overdone and, if necessary to change the orders We have also a special social service nurse who devotes her entire time to this work

REGULATIONS OF THE CLINIC

As orthopedic patients are in the habit of roaming from one clinic to another, and as we desired to watch the results carefully, we have established the following regulations which proved practical

1 No patients are permitted to attend any other orthopedic clinic during the time that they are receiving treatments at our hospital If the social service nurse discovers that they do attend another clinic they are informed either to stay with us or to go to the other place At the beginning we lost many patients namely, those who have the tendency to migrate to many hospitals while the more settled stayed with us Of course, we have somewhat the advantage that we are away from the center of the city and thus the patients are less tempted to visit other hospitals

2 On admission every child was carefully examined and the mother was told that the child could not be assigned to us unless she was willing to comply with our orders The child had to be under our control and the treatments would be changed only when we considered it necessary The distrustful mothers left us at the beginning, because of what they considered "strict discipline" while most of them realized it was for the child's welfare and remained with us

3 Every mother had to consult the physician in charge of the tent at least once every two weeks, reporting to him then how the child was getting along at home and to receive from him further instruction Of course her reports were accepted with due consideration to her intelligence At the beginning, to our surprise some mothers were not able to see the benefit of this additional burden and had to be urged to come Most of them, however, were so interetsed that they used to wait anxiously for their turn to consult the physician Within a short time the mothers learned that, if they noticed no improvement and if the child complained of any trouble of an orthopedic nature, they could come to the clinic and ask the social service nurse to make an appointment for the physician to examine the child No child was examined except in the mother's presence

4 After the first three months, no patient was admitted to the clinic who had attended another hospital unless he was transferred to us from there, or if the Society on After Care found it necessary to transfer the patient to us Thus practically most of our patients were with us all the time and, if transferred from another hospital, their records could be traced We were also able to prevent them from coming just for examination and then returning to the previous hospitals

5 The child was examined in the regular orthopedic clinic and then sent with the chart to the tent. There the attending physician, by consulting the chart, informed the masseuses what muscles were paralyzed and instructed them what exercises to give, thus the masseuses received personal instruction in reference to each child

6 The mothers have not been allowed to choose the masseuse who was to treat their children While it may be of advantage to have one masseuse treat the child all the time, as in private practice, it seems to me that for dispensary patients it is of extreme disadvantage It causes the masseuse to be partial, leads quite often to bribery and jealousy and, besides, in the absence of that particular nurse the child is left without treatment Our arrangement has been that all the masseuses should acquaint themselves with each patient For that reason the physician in charge has frequently changed the masseuses to different tables

METHODS OF TREATMENT

As far as examinations are concerned, we adhered closely to Dr Lovett's method Even with infants we were able, with a little patience, to isolate the group of muscles that were paralyzed We have not found it necessary to resort to the use of electricity for diagnostic purposes Before we started the treatments, we decided to use for the first six months massage and muscle training only and then, if necessary, to resort to electricity or, at that time, to choose cases for testing the value of electricity compared with massage and muscle training

We have mapped out that plan for the following reasons

1 We were in full accord with Dr Lovett's statement that electricity was valueless and that excellent results might be obtained by proper massage and muscle training

2 At the previous epidemic, I had used electricity alone and likewise in combination with massage and muscle training for a period of six months on more than a hundred children and did not see any benefit derived from the electricity

3 The use of electricity is quite often resorted to at home by many parents without any scientific knowledge, while muscle training is usually applied by one who is competent to do the work Even if the parents watch, they easily understand that special training is required for that kind of treatment and they will not rely on their own limited capacities When certain exercises are shown them, they follow those with greater interest than the electrical treatment and return frequently to receive further instructions

4 The mental condition of the youngsters is to be taken into consideration When one comes to our tent, where from thirty to forty children of different nationalities are being treated, one seldom hears a child cry, while in some clinics, the sight of the electrical machines is enough to frighten them This point was particularly noticed by all the social service nurses who visited our clinic

As all the patients showed marked improvement within the first six months, we did not feel justified to experiment on them We left to others to test the value of electricity, and we were willing to follow their records and compare with ours Fortunately, we had a chance to reexamine six patients They returned after three months, having left us to get electrical treatment We found less improvement in them than in similar cases treated at our clinic

At one time we had decided to follow Dr Lovett's experiment in choosing one side for electricity and the other for massage and muscle training, but the mothers had become so used to the undivided attention given to each child while using muscle training and had felt so delighted with the results, that we were certain we could retain them until the patients were cured and thus be able to report carefully on the results of the foregoing methods Though many mothers left us at the beginning because they wanted electricity, many new patients came to us from other clinics for the sole reason that they heard we were able to obtain improvements without resorting to mysterious remedies that frighten the children

The treatments were given three times a week Only on rare occasions were they ordered daily for from two to three weeks in succession If the child was very ill or home conditions bad, he was admitted to the hospital The massage given was very light, from five to eight minutes on a limb, effleurage being used first, and then kneading, alternating with slow friction from periphery to center We found that no child complained of the massage If it was painful the massage was diminished We had many patients who were previously treated elsewhere with vigorous massage and did not improve, while with light massage the pain discontinued and the improvements were rapid

In muscle training, we followed the Wright system advocated by Dr Lovett in his book on infantile paralysis We found that muscle training can be applied to infants even below 2 years of age Many infants from 13 to 14 months old could understand the order of "up," "down," "in" and "out" Some of them who were able to talk early even repeated the words as the masseuse gave the order For some, we used toys to attract their attention Of course, when the child showed insufficient intelligence, we gave passive motion, while at the same time repeating the orders, so that the meaning could finally be grasped

We resorted to braces freely Almost every shoulder patient was put in a brace, for we felt that the danger of stretching the deltoid was too great Only two children improved without the shoulder brace There were a few for whom these were not ordered at the beginning After from six to eight weeks we found that they did not improve as well as those who had them At the start they had to sleep in them, then as they improved, the braces were worn only during the day, and later on during part of the day For the lower extremities, no brace was ordered before four weeks unless a deformity was present or feared After receiving treatments for four weeks, the child was reexamined, and in most cases it was possible then to decide whether or not the patient had improved Sometimes we had to reexamine the patient before the braces were given We found that the children with the braces which allowed them to walk early improved faster than those without, and that atrophy was present to a lesser degree

We urged the proper use of the limbs and watched not to overuse them As the mothers had to report every two weeks, we asked them particularly not to overuse the muscles It was interesting to note that in many children with similar paralysis of both legs, when only one limb was put in a brace and the other limb used as a control, the leg with the brace improved quickly and showed less atrophy This seems to be due to improper and excessive use of the leg without the brace The mothers quite often begged to put a brace on the second one In many cases the brace was removed after three or four months It became evident that braces were helpful when only used for a short time

ANALYSIS OF THE CASES[1]

In the first hundred cases there were forty-three male and fifty-seven female patients The average age was 4 years, the youngest being 11 months and the oldest 18 years Other data are given in Table 1

TABLE 1—CONDITIONS PRESENT IN ONE HUNDRED CASES

Description	Number
Patients who on examination showed no deformity	7
Patients with paralysis of the face	10
Paralysis of one upper extremity	3
Paralysis of one lower extremity	26
Paralysis of face and one lower limb	1
Paralysis of face and one upper limb	1
Paralysis of spine and one lower limb	2
Paralysis of abdomen and spine	2
Paralysis of both upper limbs	1
Paralysis of both lower limbs	17
Paralysis of one upper and one lower limb	5
Paralysis of one upper and two lower limbs	5
Paralysis of one lower and two upper limbs	1
Paralysis of one upper and one lower limb, abdomen and spine	1
Paralysis of one upper and two lower limbs, abdomen and spine	1
Paralysis of two lower limbs, spine and abdomen	12
Paralysis of four limbs, spine and abdomen	5

Ten of the patients were so sick and the home conditions so bad that they were admitted to the hospital There were a few more who needed hospital care, but the children had just returned from forced quarantine and the parents wanted to have them at home As we were not anxious to force any of them and, seeing that they may be justified in seeking home care, we arranged to have them brought by the transportation bus of the Society of After Care of Anterior Poliomyelitic Cases

Braces were applied to thirty patients Deformities were not as frequent as in the previous epidemic. Most of the children, as known, were treated in the hospitals at the acute stage by orthopedists, and deformities guarded against I had only eight cases in which contractures had to be corrected before exercises could be given and braces worn

The results of eight months' treatment (October, 1916, to June, 1917) on the first hundred patients that were admitted to our dispensary are given in Table 2 Of the hundred only ninety patients needed treatments, the other ten were ordered to come only for observation Of the ninety patients, twenty-one left us at the beginning, of their own accord This, in our opinion, is the average result that one could expect in the first eight months

TABLE 2—RESULTS OF TREATMENT

Condition	Number	Percent
Patients recovered	8	11 6
Showing marked improvement	23	33⅓
Showing moderate improvement	31	44 9
Showing slight improvement	7	10 1
Patients who did not improve	None	
Patients who became worse	None	
Patients who could dispense with the braces	4	13 3
Patients still wearing braces	26	86 7

CONCLUSIONS

1 The best results can be obtained if each patient is studied individually and controlled from beginning to end This can be done even in a clinic by taking enough interest in the children

2 In light massage and muscle training, we have all the facilities for improving these patients without resorting to the mysterious electricity

3 It is easier to get the assistance of the mothers when electricity is not used than when it is used

4 The benefit derived from proper use of braces far outweighs the atrophy which it produces They

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[1] This analysis is given to show general extent of paralysis in the first hundred cases

are especially useful in deltoid paralysis Braces should be discontinued as early as possible

5 If proper orthopedic treatments are carried out, there will be marked improvement within a short time, and deformities will be prevented

6 The earlier the children begin to walk, the quicker they improve provided, of course, they do not use the limbs excessively

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS OCHSNER EBRIGHT AND BOORSTEIN

Dr Charlton Wallace, New York The treatment of infantile paralysis during the acute stage in my opinion consists in rest Protection in plaster of Paris during the stage of pain and tenderness is essential to relieve the patient from discomfort During that time fresh air is I believe a necessity as for the tuberculous patient Good general nursing and hygienic surroundings are also very important Some attention should be paid at this stage to the bowels in order to clear up congestion anywhere During the apparent paralytic stage—and by this one means the stage when many muscles seem to be paralyzed—the use of braces is preferable, when intelligently applied However even bracing not intelligently applied is better than no bracing at all As the patient progresses and gets around the amount of bracing can be cut down Braces not only help the patient to use the extremities physiologically but also prevent contractures If the braces are made properly with the weight evenly distributed, and with proper joints, corresponding with the joints of the patient the apparatus need not be cumbersome

The bath exercise is an exceptionally good thing It has been used for many years in our institutions We have seen some patients who showed no power in certain muscles but who when put into the water were able to demonstrate motion in these muscles That is probably accounted for by gravity having been overcome by the water's buoyancy If the patient displaces his weight in water, he has a little more voluntary control over muscles that are apparently not useful

One believes that any child that has infantile paralysis should have the benefit of anything that anybody says is helpful I therefore use massage and muscle training which are assets The questionable asset is electricity Whether or not it is beneficial no one can prove, but one can prove just as much about the beneficial effects of electricity as one can that any treatment is beneficial for we know that all patients improve during the first year or year and a half, no matter what treatment is employed

The prognosis, unfortunately is the thing that the mother is most concerned about, and no one can give the prognosis of a case of infantile paralysis until a year and a half or two years have passed Then the damage is done, and we know what muscles are going to be paralyzed

Dr. Walter Truslow, Brooklyn The detail of treatment is what I find of most interest. I wish to discuss the relative value of entire hospital care for these cases dispensary control of home muscle-training treatment, and dispensary control with dispensary muscle-training treatment.

When infantile paralysis struck New York City last summer it was so thoroughly frightened that it made its fright known, not by falling under the load, but by doing everything possible to meet it. The more we look back over this period the better we shall realize the debt of gratitude we owe to our health commissioner Dr Haven Emerson He is entitled to thanks for having put forward the orthopedic surgeon as the one best qualified to supervise the after-care. We had 1 800 children at the Brooklyn Contagious Hospital, where we began to use protection almost from the first. Then Brooklyn had the opportunity to secure Seaside Hospital for immediate follow-up treatment of these cases A public spirited man made it possible to treat 100 children there I have had charge of this group It was a wonderful opportunity Dr Ebright has shown the difference in the results in the children who were with us there from the first as compared with those who came later

We orthopedic men went into this epidemic with the great belief that we could prevent deformities, and that if we did so we should be doing much toward the permanent usefulness of the parts involved

I do not want to be misunderstood as saying that we have not learned anything new from this epidemic, for we have of course But we have had the good fortune to see our previous beliefs verified to a great extent this year

I believe that entire hospital care is the ideal method Absolute protection is the first essential, and this, plus progressive muscle training is the correct treatment Nowhere else than in the hospital can this be attained Our workshop is one of the important features of the place. The child is sent there and the particular problem before it is attended to at once If we sent for an elaborate brace, it would be costly, and by the time it arrived it would not be adapted to the child s needs of that particular period When the child recovers more we find what its need is then, and apply the apparatus adapted for it

Dr Henry B Thomas Chicago I want to emphasize the importance of the care of the child in the acute stage, during the hospitalization period which last summer in Chicago was five weeks It so happens that when the cases were brought to Cook County Hospital they were properly put on the contagious side They were, however, also seen by the orthopedists At this time it occurred to us that it was very important to take care of the child in this early, acute stage of the disease If a limb or the body was moved, producing pain we thought the muscle was injured and probably the nerve, and thus the child was given less opportunity to regain the normal muscle power than if we had left the muscles quiet We found that when the child was bathed every day, even with a sponge, and turned over once or twice a day, with acute pain the result was bad The child did not do so well as when left absolutely quiet. These children will do best without the sponge bath if in giving it there is pain If one can get the light massage that comes from the bath treatment and can get the child in and out from the bath even in the acute stage, without causing pain, we believe that one secures the most delicate massage there is from the change in pressure and that this will help the child's musculature We advised in some cases that the children be put on a Bradford frame, that the entire frame be immersed in the warm bath even in the early stage Some of our children at first had heavy woolen stockings placed on their feet though it was August, we had in mind the chronic infantile foot in cold weather In the early stage this is not necessary in most cases

Dr Willis C. Campbell, Memphis, Tenn It is true that we have learned nothing very new from this epidemic, but the older methods have been better systematized, and we are better able to teach the profession as a whole the necessity of early orthopedic treatment in these cases What is most important is, of course as we all know, the prevention of deformity, and this should be attended to as early as possible Massage and muscle training should, of course, not be given until after all acute symptoms have subsided I have found that individual muscle training is far superior to instruction in classes and that the child should receive daily attention Dr Truslow has brought out the fact that we may obtain better results by keeping the children in the hospital for an indefinite period This is because the children have special care and daily treatments Prolonged rest after the onset of the condition and long after the acute symptoms have subsided, is usually necessary Too early walking is to be deplored The child should be kept off his feet for six months or even a year in order to prevent deformity Proper braces and splints must be applied Deformity may often be corrected without tenotomy or other surgical procedures, as late as one year after onset of paralysis, by successive casts or adjustable braces, with appreciable return of power to the overstretched muscles, as well as restoration of proper mechanical balance.

numerous species and finally in apes and in human beings It was found that they occur with great inconstancy, in some species appearing in separate glandlike masses, in others as scattered cells They also exhibit marked variations in the same species Thus in the embryo of the horse, the interstitial cells are strongly developed, while toward the period of birth they become gradually less well defined (Born) In some species they increase at the time of sexual maturity and then diminish with age In other animals they are most prominent during the spring of the year or during the season of rut In still others they are affected by environmental changes, such as long continued isolation More recent investigation has shown that the interstitial cells become more highly developed after roentgenization of the ovaries, while in the male the homologous cells of Leydig undergo a like development as a result of vasectomy These observations have paved the way for valuable experiments which have added much to our knowledge of the nature and morphology of the interstitial cells

Equally interesting have been the speculations regarding the origin of these cells Schroen in 1863 regarded them as fragments of disintegrating corpora lutea His and Waldeyer considered them wandering cells Tourneaux recognized the homology between them and the cells of Leydig, and ascribed their origin to the preexisting connective tissue, a theory which we shall see harmonizes with views of the present time Schulin described them as epithelial structures, Harz as offshoots of the glomeruli of the kidney, Chiarugi saw in them rests of the wolffian body

Limon was the first to recognize their origin from the lutein cells of the theca interna of the atretic follicles Limon's views have been adopted by the best investigators, and it is now generally accepted that *the interstitial cells of the ovary either are identical with the lutein cells of the atretic follicles or at least are derived from them* (Tandler and Gross) The inconstancy of the appearance of the interstitial cells is explained by the fact that in some species or under certain conditions during the process of follicle atresia the theca lutein cells become "disaggregated," that is to say, separated from the surrounding envelop of the follicle (theca externa) and deposited in glandlike masses, or scattered indiscriminately through the ovarian stroma Thus, in the rabbit, disaggregation takes place and the theca lutein cells are found in glandlike masses to which the term "interstitial gland" has been given In the human ovary, on the other hand, disaggregation takes place only rarely, and the theca lutein cells remain confined by the external envelop of the follicle Hence an interstitial gland is not seen in the human ovary It is quite conceivable that the function of the interstitial cells as producers of an internal secretion might be performed equally well whether limited by a theca externa or scattered in the stroma

If we accept the theory of the identity of the interstitial cells and the follicle lutein cells, we must conclude that the production of the interstitial cells is in reality a function of follicle atresia

If, now, it can be shown by animal experimentation and otherwise that the interstitial cells are producers of an internal secretion, then we must conclude that follicle atresia is not a pathologic but a physiologic process, the object of which is the elaboration of an internal secretion

The proof of the internal secretory power of the interstitial cells cannot be included in the scope of this paper We can only allude to the influence of the ovary on the growth of the individual before puberty as shown by early castration, to the experiments with roentgenization, showing the influence of the interstitial cells on secondary sexual characteristics, to the homology of the interstitial cells and the cells of Leydig, and to the effects of ovarian transplantation and ovarian therapy, in which the influence of the corpus luteum is excluded

Thus we have sufficiently convincing evidence that the internal secretion of the ovary is manufactured both by the corpus luteum and by the atretic follicles It is now necessary to point out the relationship between these two mechanisms from a physiologic standpoint The exact nature of the lutein cells of the corpus luteum has been a matter of much discussion Some have regarded them as epithelial in origin, others as derivative of connective tissue According to Pfannenstiel, the lutein cells are partly epithelial and partly connective tissue in structure By this theory the innermost layers of cells toward the center of the corpus luteum represent a luteal reaction of the granulosa cells which develop from the original epithelial lining of the graafian follicle, while the outer or theca layers represent a like reaction of proliferating cells springing from the connective tissue envelop, or theca interna These last named elements of the corpus luteum were termed by Pfannenstiel "theca lutein" cells They correspond in the matured corpus luteum to the lutein, or interstitial cells of the atretic follicle

The *function* of the theca lutein cells is probably twofold The presence of fat in the protoplasm and the rich network of blood vessels with which they are invested early suggested that they supply nutritive material for the development of the egg The theory that they elaborate an internal secretion is of comparatively recent date To them was first ascribed hypothetically a specific influence on the sexual impulse and the development of the secondary sexual characters, the latter theory being now well established by experimental proof

Between the corpus luteum and the interstitial gland (i e, disaggregated interstitial cells in glandlike mass) an interesting reciprocal relationship has been pointed out by Bouin and Ancel, who have divided animals into two groups according to their methods of ovulation To the first group belong those species in which ovulation occurs spontaneously and periodically, as in the human race, the primates, the dog, the mare, the pig and the cow To the second group belong those species in which ovulation occurs only after coitus, as in the rabbit, guinea-pig, mouse and cat Representatives of the first group exhibit a periodic corpus luteum and a corpus luteum of pregnancy, but not a well-defined interstitial gland, while those of the second group have a corpus luteum of pregnancy, but in place of a periodic corpus luteum an interstitial gland (Tandler and Gross)

It has been objected that the interstitial cells, being of connective tissue origin, are not of the true endosecretory type, which is usually epithelial in character This objection is met by the fact that certain other connective tissue elements are known to possess endosecretory power, notably the suprarenal cortex and the cells of Leydig It has been demonstrated that the endosecretory elements exhibit characteristic staining properties, and among these elements has been included a list of cells of connective tissue origin, such as the cells of the serosa the stellate cells of the liver, the reticulum of the blood and lymph apparatus, and the bone marrow (Goldmann)

Another point of interest is the manner of growth of the interstitial cells It is quite evident that they develop from the preexisting connective tissue cells of the ovarian stroma which at a given moment become 'activated' and take on the morphologic character and functional properties of interstitial cells (Tandler and Gross) It is conceivable, therefore, that the undifferentiated stroma cells of the ovary have endosecretory powers which may be of value in the manufacture of ovarian extracts for therapeutic purposes

An important phase in the study of the ovarian internal secretion is the question of the selective action of certain of the secretory elements This part of the subject is at present very much in the dark Fraenkel's assertion that the corpus luteum regulates the nidation and early growth of the egg is by no means universally accepted The early theory that the corpus luteum presides over menstruation is no longer tenable, some even holding that menstruation is determined by the elimination of the corpus luteum Somewhat more definite is the evidence that the interstitial gland presides over the development of the secondary sex development, experiments having shown that the sex characters remain if the purely generative portions of the ovaries, after early castration, are excluded by the Roentgen ray, whereas these characters undergo wide variation after early castration (Tandler and Gross) There is much to show, on the other hand, that the action of the ovarian secretion is neither direct nor selective, but that it exerts only a balancing influence on other correlated and more powerful glands, the activity of which the ovarian secretion discharges or suppresses, as the case may be

Our clinical observations in the study of ovarian therapy are confirmatory of this theory

To sum up then, present knowledge indicates that there exist both in the corpus luteum and in the atretic follicles cellular elements identical in their origin from a specific connective tissue structure with the theca interna, and capable of producing an internal secretion which is important to the growth and normal functioning of the organism If this is true, we have a basis on which to found a rationale for ovarian therapy

If an internal secretion is manufactured from both the corpus luteum and the atretic follicles by cells of identical structure, extracts made from the corpus luteum alone lack that valuable part of the secretion which is derived from the atretic follicles Moreover, it is impossible to tell by inspection whether a given corpus luteum is in the process of maturation or at the height of its development, or in a stage of involution and disintegration It must happen that in the preparation of many corpora lutea for therapeutic purposes a varying number are included in which the essential cells are no longer active as organs of internal secretion, and are actually in a condition of protein dissolution We should expect, therefore, that commercial preparations of corpus luteum would present a wide variation in their therapeutic effects, and, owing to their readiness to decompose, would have a special tendency to become toxic

On the other hand, if the preparation be made from the whole ovary, including corpus luteum, stroma, and follicles, the important follicular secretion is not lost Preparations of this kind would be expected to be more stable in their composition and more constant in their effect than those of the corpus luteum alone These conclusions have been amply borne out by our clinical experience

In estimating the comparative merits of preparations of the whole ovary and those of the corpus luteum alone, most of our observations have been made in treating the vasomotor symptoms following hysterectomy In this type of case the corpus luteum showed a great variation in effectiveness, often being entirely valueless, and occasionally producing digestive disturbances On the other hand, the whole ovary, used in a large number of cases, showed great constancy in therapeutic effect so that we have come to regard it as almost a specific in the treatment of ablation symptoms, both of the artificial and natural menopause Striking results have also been obtained in the treatment of functional amenorrhea, and in the circulatory disturbances of the external genitals, such as kraurosis and the discomforts of senile atrophy

In order to test further the effect of luteal preparations compared with those of the whole ovary, a series of clinical observations was undertaken with desiccated corpora lutea of pregnant animals In all, nineteen cases were treated, representing hot flushes from the menopause, oligomenorrhea, dysmenorrhea and amenorrhea In all but two of the cases, toxic symptoms of a digestive nature were produced Preparations from both the cow and the pig reacted in the same way The symptoms were invariably those of nausea and vomiting following one or two doses In one case the ingestion of one 5 grain capsule resulted in continuous nausea and occasional vomiting for a period of ten days The result of these clinical experiments cannot easily be explained It was at first thought that the effects might be due to decomposition of the extract, but fresh preparations produced the same symptoms They could hardly be due to anaphylaxis, on account of the high percentage of patients affected

These observations suggest the possibility that the nausea and vomiting of pregnancy may be determined by the toxic effect of the internal secretion of the gestative corpus luteum.

In view of the favorable results obtained from the whole ovary compared with the corpus luteum alone, and of the positively bad results from the corpus luteum of pregnancy, we next determined to try the effect of the ovarian substance alone minus the corpus luteum

In this experiment, the ovaries of pregnant animals were chosen partly as a check to the experiment with the gestative corpus luteum and partly to test the therapeutic effect of the internal secretion of the atretic follicles It was thought that pregnant ovaries would be particularly favorable for studying the follicle internal secretion, owing to the well-known fact that during pregnancy the process of follicle atresia is especially active

The results with this substance were interesting The toxic effects created by the corpus luteum of pregnant animals was entirely absent, thus showing that its poisonous reaction could not have been anaphylactic in character The new substance produced results similar to those of the nonpregnant ovary, but in general more striking This was especially true in the treatment of vasomotor symptoms following hysterectomy The preparation, as will be seen from later statistics, proved generally successful in the treatment of hot flushes, and in certain cases of amenorrhea, dysmenorrhea, intermenstrual pain, catamenial nausea, headache and the genital discomforts of senile atrophy

From observations made with this substance, incomplete as they are, we have at least suggestive evidence that an internal secretion is elaborated from the follicles which in therapeutic value is equal to and probably greater than that produced by the corpus luteum

THERAPEUTIC EXPERIENCE

Ovarian therapy was extensively employed for a number of years in our hospital and private practice, before exact statistical records of the cases were instituted Our experience during this period, though unrecorded, is, however, not without significance, for as a rule the reactions from ovarian therapy are sufficiently marked to make very definite impression It was during this period that we observed repeatedly the therapeutic superiority of the whole ovary over the corpus luteum Many commercial preparations of each type were tried, and a great variation in therapeutic effect was discovered Of the preparations of whole ovary, a desiccated product put up by Armour & Co, administered in 5 grain capsules, proved the most efficacious For the best results, it was found necessary to have fresh preparations and to impress on the patient the importance of keeping the capsules in a cool place to prevent decomposition The corpus luteum products, though generally inferior to those of the whole ovary, were nevertheless not without therapeutic value

Since the institution of careful records of therapeutic results, fifty-three cases have been observed in which the whole ovary has been employed The following conditions were treated vasomotor disturbances of the natural and artificial menopause, general debility, furunculosis of the external genitals, external genital discomfort from senile atrophy, amenorrhea, dysmenorrhea, oligomenorrhea, irregular menses, menstrual headache, nausea and vomiting, and sterility Full statistical results of these cases will be given in a later report It may be said that the most striking results were obtained in the treatment of menopause symptoms, and the circulatory disturbances of the external genitals In all the conditions enumerated above, excepting sterility and essential dysmenorrhea, the preparation proved therapeutically valuable, though in each of the conditions it often failed to be effective

Since the employment of the ovaries of pregnancy without the corpus luteum, all the cases have been carefully recorded Reports of thirty-four of these cases have been collected, of which a complete report will be made at a later date The conditions for which the substance was administered were the same as those mentioned above, for which the whole ovary was used The results were in general similar to those from the whole ovary, excepting that they were somewhat more constant and in many instances more brilliant In several cases a comparison was made with the effects of the whole ovary In all of these cases, with one exception, the ovary of pregnancy without corpus luteum had the advantage In three of these cases in which the whole ovary had completely failed, the ovary or pregnancy produced surprising results[1]

CONCLUSIONS

1 Studies in ovarian organotherapy are at present necessarily confined for the most part to clinical observations Such observations, though admittedly inaccurate, may, to a limited extent, be of scientific and practical value

2 Personal clinical experience with preparations of ovarian substance has revealed that preparations of the corpus luteum alone are less efficacious therapeutically than are those of the whole ovary

3 Theoretical knowledge and scientific experimentation tend to show that an important part of the ovarian internal secretion is elaborated by the interstitial cells.

4 It is probable that the interstitial cells correspond to the lutein cells of the theca interna of the atretic follicle In some animals these cells become disaggregated and appear as glandlike masses (interstitial gland), in others they remain confined to the follicle by the outside envelop (theca externa)

5 The interstitial cells, therefore, correspond to the theca lutein cells of the corpus luteum

6 The interstitial cells of the ovary are analogous to the testicular interstitial cells of Leydig, which are known to elaborate an internal secretion

7 Ovarian therapy, for its best effectiveness, should include at least the product of the interstitial cells Preparations should, therefore, comprise the ovarian stroma, in order to take advantage of the atretic follicles

8 Preparations made from the corpora lutea of pregnancy proved too toxic for practical use

9 Preparations made from the ovaries of pregnant animals, with exclusion of the corpora lutea, proved superior therapeutically to preparations of whole ovaries of nonpregnant animals that included the corpus luteum

10 The superiority of the follicular products of pregnancy is explained by the fact that during pregnancy, follicle atresia is especially marked, and is accompanied by a corresponding increase in the activity of the interstitial cells

244 Marlboro Street

ABSTRACT OF DISCUSSION

Dr S W Bandler, New York A year ago I had the pleasure of discussing a paper by Dr Graves on this subject. We agreed then that better results were obtained from ovarian extract than from the extract of corpus luteum One needs only to see the ovary under the microscope to realize that there must be two distinct secretions in the ovary The experiments of Schafer have shown that if corpus luteum is injected into animals, contraction of muscle fibers results Injection of extract of the hilus causes no contractions of the uterine muscle fibers Therefore, we must conclude that there are at least two hormones in the ovary, one which contracts muscle fiber and one which does not

On what depends the difference in structure and form of the body in the female and the male? We must remember that the ovary acts for many years before the girl menstruates During these years before menstruation no ova are given out Yet we see the difference physically between a boy and a girl of the same age We have interstitial cells in the testis, we have interstitial cells in the ovary, and they act differently on the different areas of the pituitary gland We have the interstitial cells of the testis stimulating the anterior lobe more than is done by the ovary in the female Hence the anterior lobe of the hypophysis is much more of a male gland than a female gland We have the aid of the ovary in stimulating the posterior lobe more than does the testis in the male. Hence the posterior lobe of the pituitary gland is more a female gland than a male gland

The growing fecundated ovum with its trophoblast and later chorion is a parasite attempting to invade the maternal uterine structures The protective power of the maternal structures prevents too great an invasion, and among these protective, ductless gland forces the pituitary and the corpus luteum must be reckoned Hence we see that the ovary as well as the other ductless glands, presents numerous hormones

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[1] I am indebted to P[illegible]e Davis & Co for their courtesy in furnishing me with material with [illegible]ich to carry out these clinical experiments

Twenty years hence we shall be treating various pathologic states and conditions by the administration of tested, isolated hormones instead of giving as we are compelled to do at present the whole gland extract

Dr Emil Novak Baltimore Dr Graves has approached the problem from the proper point of view, but I know he will agree that it is still far from being solved Of the elements making up the ovary the one most clearly associated with the menstruation is the corpus luteum This structure, in one phase or another, is always to be found in the ovaries of menstruating women exhibiting cyclical changes corresponding to the stages of the menstrual cycle On the other hand corpora lutea are not found in the ovaries of young girls before puberty or in those of women beyond the menopause Furthermore, administration of corpus luteum extracts at times induces menstruation in amenorrheic women For such reasons as this I have personally been inclined to the employment of corpus luteum preparations in the treatment of menstrual disorders The results cannot be said to be brilliant but they are often satisfactory especially in the psychoneuroses of the menopause.

Aside from menstruation the ovary is important also in the determination of the developmental changes characterizing puberty—such changes as the configuration of the body, the distribution of the hair the character of the voice, etc. The evidence indicates that the hormone concerned in these secondary sex changes is derived from some element in the ovary other than the corpus luteum What this element is we cannot say and hence in the treatment of such developmental conditions as retarded puberty it has seemed to me that extracts made from the entire ovary are indicated rather than those derived from the corpus luteum alone

As for the interstitial cell, I do not believe that Dr Graves has made out a case for it, as far as a role in menstruation is concerned These cells so characteristic of the ovaries of such animals as the rabbit and guinea-pig, are not found in the human ovary It is true that in pregnancy the theca cells of atretic follicles multiply and form what is called the interstitial gland In this sense the interstitial cell of the human female is important in pregnancy, but I know of no evidence showing that it influences menstruation During the early part of pregnancy a corpus luteum is present, but menstruation is absent. This apparent paradox is easily explained on the assumption that the corpus luteum hormone is inhibited or counteracted by a hormone of fetal (trophoblastic) origin

From a practical standpoint, the gynecologist or general practitioner may limit himself to three extracts in the treatment of menstrual disorders (1) ovary or corpus luteum, (2) pituitary, (3) thyroid Of these three, I believe the one which is most valuable in the largest number of cases is the extract of thyroid

Dr. Lawrence W Strong New York I wish to accentuate the difficulties of drawing conclusions, which Dr Graves pointed out. Indeed, I wish to deprecate the drawing of any conclusions from the exhibition of the commercial preparations of the corpus luteum, at least, until further experimental work is done Much has been said about the interstitial glands It is unfortunate that we have no exact knowledge of these glands According to a recent hypothesis of Shroeder the follicle has a definite function—stimulation of the growth of the uterine mucosa—while the corpus luteum has quite a different function—stimulation of secretion of the uterine mucosa If this is the case and possibly it is there might be antagonism between the secretion of the theca cell and that of the true corpus luteum For that reason, in experimental work, instead of using the entire gland, we should use the pure secretions from definite organs I seems to me necessary to get exact information in regard to the secretion of the corpus luteum itself There is not a unanimity of opinion at present on this Perhaps the best opinion held is that it inhibits menstruation rather than causes it That being so, we are certainly in doubt as to the actual cause of menstruation, it is therefore perfectly obvious that one cannot use the commercial preparation in an intelligent way

Dr P B Salatich, New Orleans From our observations we are sometimes forced to feel that the internal secretion of the ovary has something to do with holding the weight down In one patient operated on for pelvic conditions, the woman weighed 98 pounds, eight years ago The right ovary was removed and most of the ovary on the left had been taken out When I operated again five weeks prior to this meeting she weighed 240 pounds, having steadily gained weight, and had had very little menstruation at each period I found that the part of ovary left was doing very little work It was bound down by adhesions and it was necessary to remove it An interesting point in this case is that about three weeks afterward, at about the time she should have menstruated again, she had severe headache. I treated her with all kinds of remedies, even morphin I put her on ovarian extract and in twenty-four hours the headache had disappeared We find many patients who gain weight rapidly and these patients we know do not menstruate. It is important in all gynecologic cases to try and save a part of both ovaries If this cannot be done in situ, I save a part of the ovary and put it between the fascia and the muscle. I had one such case and after two or three months the woman began to menstruate I have had more than one case of high blood pressure coming on after the menopause, and in trying to locate some probable cause for this from a physiologic standpoint, I put these women on ovarian extract. To my surprise the blood pressure lowered

Dr. Adam P Leighton, Jr, Portland, Me For the past five or six years I have used quite extensively the extract of corpus luteum in the treatment of those gynecologic conditions dependent on ovarian deficiency I have used ovarian extract as well as corpus luteum, but it is with the latter that I have obtained my good results The only reason that good results have not been forthcoming in some cases in which corpus luteum has been indicated is that we have not given it in sufficient quantity or for a sufficient length of time. One must administer it for six or eight weeks, as a rule, before the desired results may be expected or otbained in any given case of ovarian insufficiency The action of corpus luteum by mouth is slow and cumulative and we should impress this fact on the patient at the time when treatment is commenced

Dr. William P Graves, Boston The contradictions which exist in regard to this important subject are illustrated by the remarks of Drs Novak and Strong Dr Novak said that menstruation is dependent on the corpus luteum, while Dr Strong expressed the opinion that the corpus luteum actually inhibits menstruation The latter view is one which I have come personally to believe. It is supported to a certain extent by a clinical experiment which I recently made

Two amenorrheic women came to the hospital at the same time. One of them, 26 years of age, had menstruated only a few times in her life. She had been married five years, without children She was perfectly developed, both as to her primary and secondary sexual characters The second was a young woman of 21 who had menstruated only two or three times in her life, the last time four months previous to her coming to the hospital It happened that there was at the hospital at the same time a woman who had had menorrhagia and metrorrhagia for five years as a result of uterine insufficiency Repeated curettings had been of no benefit The uterus was anatomically normal The Wassermann test was negative. Inasmuch as a hysterectomy seemed advisable, it was determined to graft ovarian tissue from the menorrheic woman into the two amenorrheic patients Accordingly, during the hysterectomy on the last named patient, sections were taken from the ovary in which there was no corpus luteum These sections were immediately transplanted into the anterior cervical lip of the amenorrheic patients The first patient a few days after the operation had a perfectly normal menstruation for the first time in three years The second patient menstruated normally in about twelve days and has menstruated regularly since for about five months

In these two cases the action of the ovarian internal secretion was apparently exerted by a portion of ovarian tissue from which the influence of the corpus luteum was excluded

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SUDDEN AND PROFOUND DEAFNESS ITS SIGNIFICANCE *

OTTO J STEIN, M D
CHICAGO

A more exact distinction might and should be made between acute deafness, that is, actual loss of all practical hearing in one or both ears, and impaired hearing or so-called deafness The type of deafness I have in mind to discuss is one that is profound and at the same time appears suddenly To draw an absolutely arbitrary line of distinction between this and all other types of deafness is manifestly impossible, but it is practicable to separate them into two groups for the purpose of aiding in the diagnosis and of rendering immediate first aid in order to avoid irreparable damage Hearing many times is relative as far as it is a symptom, but when a person with normal or satisfactory hearing rapidly loses all of the hearing in one or both ears, his condition assumes a significance distinctly in a class of its own Therefore, under the grant of this title, consideration will not be given to such types of deafness that present slight or only partial impairment of hearing, although possibly taking place suddenly, or to such cases in which profound or absolute deafness ensues gradually from chronic changes in or about the hearing apparatus In the latter class of cases the same importance is not attached to the deafness as where such a calamity occurs apparently out of a clear sky The patient at the end of a day's hard work, or after some active exercise, suddenly finds his hearing gone on convalescing from a protracted illness, but with ordinary good ears, he suddenly loses his hearing, or while going about his daily routine, or on awakening after a night's rest, there is a total extinction of his hearing powers And then again in the presence of a suppurative ear disease his hearing may suddenly be lost Such a condition most reasonably creates a state of alarm, if not panic

The symptomatology in a patient stricken with sudden and profound deafness is often that of Méniere's syndrome that is, sudden deafness with tinnitus and vertigo, occasionally nausea and vomiting, and at times loss of consciousness But the pathogenesis, as well as the location of the lesion, determines the presence or absence of these and other symptoms that may be present, such as nystagmus, facial paralysis, ataxia, headache, aphasia, convulsions, hemiplegia, mental bewilderment, and in case of a petrous fracture, a serosanguineous discharge from the ear and nose The tests show obliterated perception of all ordinary sounds Sometimes there may be gaps in the hearing scale where some slight perception still lingers, but oftentimes the supposed remnants of hearing are only perceptions of other sensations like those of touch, temperature, vibration and vision

Consideration of the fact that malingering and hysteria may contribute to the exhibition of these symptoms should at all times be in mind, but ordinarily such causation may be dismissed In traumatism the causative factor is so apparent that only occasionally will the diagnosis be obscured The same may be said of the occupational causes, an example of which is the caisson worker A few cases may be caused by various toxicities, either drug or disease, although ordinarily such exciting factors bring about a more gradual loss of hearing Following the use of salvarsan or its allies, complete paralysis of the eighth nerve has been reported at various times It is still debatable whether or not the paralysis occurs as a result of a Jarisch-Herxheimer reaction In a similar way anaphylactic cases may occur following the use of certain serums The greater number of cases are caused by certain systemic diseases like syphilis, the various anemias and leukemias, diabetes, arteriosclerosis, mumps, pertussis, and, as mentioned before, in some of the suppurative ear diseases Also among the insane this type of deafness occurs

The site of the lesion directly causing the symptoms of deafness may be in the labyrinth, in the eighth nerve or in the cranial cavity, the labyrinth cases being perhaps the more numerous The causative factor may operate directly on these centers or indirectly through neighboring channels Both the vestibular and auditory functions may be involved simultaneously or separately Ordinarily disorders of the conduction apparatus rarely cause sudden and absolute deafness The following case, therefore, is unique in my experience and of unusual interest

Case 1—A woman, aged 28, while still in bed, during convalescence from pernicious anemia, there being no previous history of hearing impairment, was suddenly seized with a buzzing sound in the head There was a feeling of tension and fulness in the ears accompanied by some pain Complete deafness resulted, accompanied by nausea and blood stained sputum Inspection showed that the drums were bulging and blue gray Incision was followed by free bleeding and bloody serum The hearing gradually returned to almost normal

Similar cases of bleeding in the middle ear have been reported from other causes, such as gun fire, especially from the big field pieces now in use, and also from head injuries due to blows or falls

Hemorrhagic effusions into the labyrinth will bring about sudden and complete loss of hearing In injuries due to a fall or blow, the hemorrhage frequently becomes manifest, but occasionally it is concealed, thus obscuring the direct cause of the deafness In the apoplectiform variety of hemorrhages, such as occur in hematopoietic disorders like pernicious anemia, leukemia and chlorosis, the deafness is usually sudden and profound In the labyrinth cases that are due to congestion or anemia, the deafness and tinnitus may be only temporary, while the hemorrhagic cases and those due to emboli are far more serious and profound The embolism or hemorrhagic variety is illustrated in Case 2

Case 2—A man, aged 50, an accountant, while at work at his desk, had a severe ringing tinnitus in both ears followed immediately by loss of equilibrium causing him to fall from his chair There was no loss of consciousness and no muscular spasm or paralysis His mind remained clear There was some nausea, and profound deafness appeared immediately There was no previous ear disease, suppurative or otherwise, and no previous attacks of vertigo

A week later there was no response of either the vestibular or hearing labyrinth His deafness remained permanent

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

In syphilis and suppurative ear cases there is more often a history of various degrees of vertigo and perhaps tinnitus before the grand attack.

In the labyrinth cases complicating either acute or chronic middle ear suppurations, there may result sudden and complete deafness either alone or associated with vestibular disturbance, but more usually this deafness is not sudden or completely lost at once, unless from rough or unnecessary manipulation during operation or treatment. In the serous type of labyrinthitis the hearing usually returns on convalescence or recovery. I have seen several such cases.

Of the constitutional causes the syphilitic cases are probably the most numerous. In these cases the lesion may be due to the toxins or to a gumma. In some cases it may be due to a destructive process and an endarteritis or an acute inflammatory process. The site of the lesion may be in the labyrinth, in the nerve or in the brain centers, and it may occur in either the acquired or the hereditary cases. In the acquired form a neuritis from the toxins may occur as early as the primary period of the disease, although more commonly the changes show later during the secondary and tertiary stages, which may be years after the primary and after a presumable cure. The following case illustrates this type:

Case 3.—A man aged 62, experienced a sudden and absolute loss of hearing in both ears following a 'cold' in the head the week before. He had had some slight impairment of hearing of late years which presumably was of a middle ear catarrhal type. At the time of losing his hearing suddenly he was still in bed suffering from his "cold." The attending physician said it was due to the 'cold' and would pass off in a day or so. The deafness was accompanied by a severe tinnitus and vertigo, the latter occurring both while standing and lying. There was some nausea but no vomiting. The patient recovered from his 'cold' but the deafness continued, the vertigo lessened but was not entirely absent, tinnitus was very annoying. When first seen by me while he was still in bed due to the vertigo examination of the ears with tuning forks and whistle elicited no response. Inflation of the eustachian tubes did not improve the hearing. Inquiry at this time brought out the fact the patient had acquired his syphilis forty-five years before. He was under treatment at that time for three or four years and considered himself cured, having had no evidences of the disease since that time, meanwhile having married and raised a healthy family. The Wassermann test was strongly positive. He was immediately placed on vigorous treatment, starting with mercury and iodids in solution and then sodium cacodylate in increasing doses. Improvement seemed rapid after this. Later he was given five injections of neosalvarsan in doses of 0.9 gm. Repeated Wassermann tests since that time, which was fifteen months ago, have been negative. His hearing has improved so that it is better than before his recent illness.

It will be noted that in this case the attending physician attributed the deafness to the "cold" and made a prognosis of speedy recovery within a few days, and that he did not recognize the syphilis as a causative agent. Fortunately the true condition was recognized early enough, and by the institution of vigorous and proper treatment at once, recovery was possible. If cases of this kind pass unrecognized for any length of time no such brilliant results can be expected.

Another case of probable endocranial syphilis exhibited, in addition to an abolition of auditory perception, distinct diabetic symptoms:

Case 4.—A man aged 41, returning from a fatiguing ride and exposed to inclement weather, suddenly and absolutely lost all hearing in both ears. There was no vertigo, nausea, vomiting or tinnitus. The right ear previously was apparently normal, the left ear was somewhat impaired as to hearing and had a mild tinnitus, but no paracusis willisiana. Following this attack he was under the care of several physicians and one aurist. No one diagnosed syphilis, or treated him for it. Four months later he presented himself to me for examination. The patient was apparently well and robust and absolutely denied syphilis. Tests with voice, tuning forks, whistle, bells, etc., elicited no response. In speaking the patient fairly shouted. Both drums were fairly normal and the tubes were open. There was no spontaneous nystagmus, but it was easily induced calorically but not exaggerated. Turning evoked a normal and strong horizontal nystagmus. There was no Romberg except after testing. There was no hereditary deafness. Two Wassermann tests of the blood were strongly positive. The spinal fluid showed a lymphocytosis and serum globulin in excess, Fehling and Wassermann tests were both positive. The patient was placed in the hospital for treatment with potassium iodid and mercury was administered in large doses. Two weeks later 0.6 gm. of salvarsan was given intramuscularly. This was repeated in four weeks. In the interval mercury and iodids were used. The urine was examined before and after treatment commenced, and was negative. Shortly following the first, as well as after the second injection, he spoke of a great desire for drinking water. About seven weeks after commencing treatment he began to experience symptoms of myasthenia. General muscular weakness and easy fatigue on slight exertion appeared. He was constipated and lost his appetite. Later, there were attacks of cardiac oppression and polyuria, and a large quantity of sugar appeared in the urine. Within two weeks, more difficult mastication and deglutition developed, with attacks of vomiting, extreme exhaustion and finally coma, in which the patient died. No necropsy was held. No improvement in hearing followed the treatment.

In these cases there may be hemorrhagic areas. The labyrinth and its nerve may show round cell infiltration and beginning atrophy in the spiral ganglion, lamina spiralis and the nerve. The inherited cases may occur at any age, often in the babe, deafmutism results. Again, it may occur just before puberty, when it is recognized as one of a triad of symptoms, namely, interstitial keratitis, notched incisor teeth and deafness. The disease may originate endocranially as a meningitis or an endarteritis, and then extends along the nerve and vessels to the labyrinth.

In Case 4, the lesion, prior to the grand attack, and when the patient was having some impaired hearing and tinnitus in the one ear, appears to have been an endarteritis of the cochlear artery. This might then have culminated in the apoplectiform attack, resulting in the sudden and total extinction of all hearing and tinnitus. That the cochlear nerves alone were involved is shown by the absence of all vestibular disturbance. But from the subsequent course of the case presenting diabetic symptoms and medulla disturbance, it is reasonable to infer that the site of the lesion was near the floor of the fourth ventricle. Fibers of the cochlear nerve decussate in this region, passing across to the trapezium and upper olive, and a lesion in this neighborhood might not only destroy the function of the cochlear nerves but also irritate sugar production, etc.

In many of the acute diseases, like influenza, mumps and pneumonia, without an acute inflammatory or a suppurative ear process being present, the pathology recently has been attributed to changes within the labyrinth the result of toxic agents. The toxins may cause a serous effusion or a true neuritis, while in the other cases actual destruction to the end organs may result, particularly the organ of Corti.

A meningic deafness that may accompany cerebrospinal meningitis is usually sudden and profound, and is due to a diffuse labyrinthitis Its appearance at the time may be overlooked, owing to the crisis present of the fever itself The drum and middle ear are almost always normal or nearly so, differing in this from panotitis seen in scarlet fever and measles All of these cases assume an importance much beyond the average case of deafness and much beyond what many physicians appear to recognize With a fuller knowledge of their seriousness, many of these patients might be rescued from a probable hopeless and helpless future By instituting prompt and vigorous measures in treatment, some of them can be cured or at least greatly benefited Auditory reeducation will benefit a certain number Where such gratifying results are impossible, the prompt employment of lip-reading as a new education should be advised

30 North Michigan Avenue

ABSTRACT OF DISCUSSION

Dr Henry S Wieder, Philadelphia Dr Stein calls attention to the necessity for early treatment, especially of syphilitic deafness, if one hopes to obtain results I have been fortunate enough to have something to do with one case, a man who was almost totally deaf for five years One had to shout through a megaphone to make him hear He showed no nystagmus, and no definite evidence of vestibular trouble We put him in the Barany chair and from our vestibular tests suspected syphilis We had a Wassermann test made which showed a four plus Following salvarsan treatment he had two intraspinal injections of Dr Schamberg's new antiseptic, mercurophen, and now he can hear an ordinary voice tone He shows peculiar manifestations in that when he turns his head to one side he can hear more plainly than when he holds his head erect. Syphilitic cases should not be given up no matter how long they have gone on, and in all cases of profound deafness, the patients should be subjected to the Barany test, whether they show definite evidence of vestibular trouble or not, because we are finding in many cases that latent syphilis will show itself earlier in the eighth nerve than in any other nerve in the body

I have recently seen two cases of cerebrospinal meningitis, one in a young child who is absolutely stone deaf and shows no cochlear or vestibular reaction I also have a child that came recently with a ready-made diagnosis of having had cerebrospinal meningitis at 6 months of age This child's hearing is very good, but on turning as fast as we can, no vestibular reaction can be obtained I cannot quite conceive of the inflammation completely destroying the vestibular portion of the nerve on both sides and leaving the cochlear portion alone The case is still under observation

Dr. T O Edgar, Dixon, Ill In illustration of the ear manifestations that may occur in leukemia, I wish to report the following case A farmer, aged 44, referred to me for ear examination, presented the typical blood and other findings of myelogenous leukemia, probably of several years' duration At 7 a m, ten days before his death, the patient failed to answer even the loudest voice of his nurse, whereas three hours previously his hearing appeared to be entirely normal The patient was conscious and able to respond readily when made to understand by writing, or otherwise Otoscopically, the membrana tympani appeared quite normal. With the noise apparatus of Barany in his left ear, he was able merely to detect a noise when one yelled in his right ear, and he was able to hear for a few seconds the loudest vibration of the small Stenger "A" fork The vibrations of all the other forks of the Bezold series were unperceived The left ear was completely deaf to the loudest voice and to the tuning fork mentioned There was no pathologic, spontaneous nystagmus, the patient had, however, for the previous ten days been a little dizzy, but, so far as could be learned, did not exhibit a tendency to fall in any particular direction Unfortunately, a postmortem was refused The histologic findings, according to Schwabach and Alexander, are as follows In the middle ear, free extravasation of red and white blood cells, infiltration of the mucous membrane with lymphocytes or effusion of blood, and accumulation of lymphocytes in the blood vessels, in the labyrinth were found (1) marked infiltration of the nerve stem and its branches and of the membranous parts with lymphocytes, with or without simultaneous effusion of red blood corpuscles, leading to rupture or compression of the soft part, (2) inflammatory reactions with leukemic infiltration of the soft parts, and (3) secondary changes, such as formation of connective tissue, bone and pigment deposit, and secondary degeneration of the nerve

Dr. Cullen F Welty, San Francisco A neuritis of syphilitic origin is amenable to treatment, but the neuritis that comes from other sources, say a neuritis produced by scarlet fever, etc, is not Such patients do not improve A young lady about 20 years of age while consulting an ophthalmologist for a syphilitic cornea, from which she was almost blind, suddenly one morning became deaf She could not hear a shout with a tube put in her ear I did not wait for a Wassermann reaction She was given salvarsan, which was continued for a month and her hearing was restored That was about three years prior to this meeting

One-sided deafness, I believe, is somewhat different from deafness on both sides If we have a one-sided deafness, I am somewhat inclined to lay it to a syphilitic origin rather than to toxemia or neuritis The toxemia or neuritis seems to affect both sides equally It is a fact that the vestibular side is more amenable to treatment than the cochlear side In a number of patients who complain of some dizziness and possibly nystagmus at times, on testing them with the rotary chair there will be a reaction, but at the same time, their hearing remains about the same

Dr Otto J Stein, Chicago The remarks of Dr Wieder were interesting to me because he believes that old syphilitic cases that have been overlooked and neglected, and in which the patients have lost their hearing entirely, can be improved so that they may hear well That is news to me I do not think that is a common observation, but I can understand how this may be brought about by the intensive way of treating syphilis, especially by the intraspinal method of reaching the central nervous system

It would detract from the important point of the paper if emphasis were not placed on the *early* recognition of these cases So I think we ought to emphasize the importance of getting at them early and recognizing them and treating them energetically as soon as possible

That the vestibular branch of the eighth nerve is so sensitive to the destructive influence of syphilitic disease has not been my observation I have felt that it was the cochlear fibers that were more sensitive, and my cases usually have shown this to be so after employing all the tests that are recognized today for determining any present vestibular irritation

The question is interesting and has been talked about a great deal, as to why in some cases there is a ready response to salvarsan, or any of its allies, and in others there is a deafness which does not respond to increasing doses We recognize that many of these cases are due to the Herxheimer reaction and will respond to increased doses of mercury, but occasionally we have cases that do not respond to this treatment, and what the true pathology is I do not know These cases make one hesitate about using great quantities of the remedy

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Poetic Hygiene—

If thou to health and vigor wouldst attain,
Shun weighty cares—all anger deem profane,
From heavy suppers and much wine abstain
Nor trivial count it, after pompous fare,
To rise from table and to take the air
Shun idle, noonday slumber, nor delay
The urgent calls of Nature to obey
—From the Code of Health of the School of Salerno,
Albert H Buck, The Growth of Medicine

THE FOUNDATIONS OF VOICE IMPAIRMENT RESULTING FROM TONSILLECTOMY *

ELMER L. KENYON, M D
CHICAGO

The following study is based on a careful investigation of the physiology of the soft palate and of the mechanicophysiologic importance of the tonsil, on a careful examination of 161 tonsillectomized throats, and on a study of thirty cases of voice or other disturbance resulting from tonsillectomy The work has demonstrated the great need for accurate knowledge concerning the mechanical effects of tonsillectomy, and also has failed to quiet any feeling of unrest with respect to the effect of the operation on either the speaking or the singing voice The study tends to prove that by reason of the important physiologic function of the capsule of the tonsil the operation of tonsillectomy possesses a mechanicophysiologic importance much greater than that heretofore realized

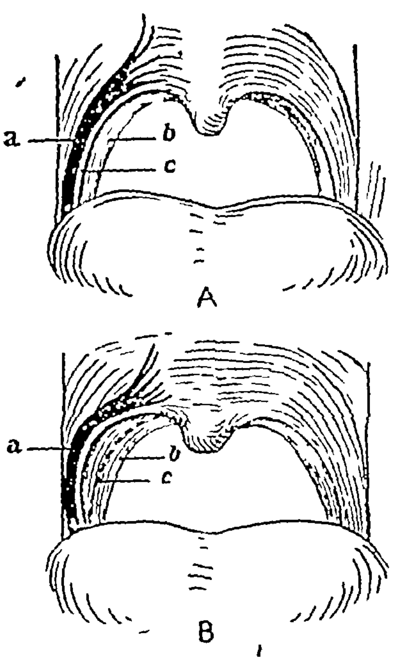

Fig 1 *A*, schematic picture of normal anterior pillar (*a*) palatoglossus muscle (*b*) posterior pillar, (*c*) edge of anterior pillar *B* anterior pillar has sagged toward outer wall following operation pulling action on soft palate has begun *a* palatoglossus, *b*, posterior pillar *c* normal position of edge of soft palate *C* marked retraction of anterior pillar with half of the structure obliterated, tension on palate now is greater complete obliteration of the anterior pillar (a still more marked deformity than that shown in *C*) occurred in 39 per cent. of the cases examined

PHYSIOLOGY OF THE SOFT PALATE

Anatomically and physiologically, the faucial region is too complicated for easy or superficial interpretation Certain anatomicophysiologic facts require emphasis

1 The posterior pillars, namely, the palatopharyngei muscles with their overlying mucous membranes, cannot be considered as mere adjuncts of the soft palate, but must be regarded as actual intrinsic factors of the palatal structure Their function consists in a musculo-anatomic service in connection with the body of the soft palate When the levator muscles elevate the body of the velum on phonation, the palatopharyngei muscles cooperate with the levator muscles of the palate closely, to adjust the posterior pillars in the lateral angles of the posterior pharynx, thus closing off the nasopharyngeal isthmus laterally, a service accomplished by the body of the soft palate in the center

2 The closure of the nasopharyngeal isthmus laterally, however, is not always accomplished wholly by the posterior pillar folds of the palate In an unknown proportionate number of throats this lateral closure is accomplished by a cooperative action of the posterior pillars and the constrictor muscles which close in at the sides for this purpose In view of the frequent impairment and destruction of the posterior pillars in tonsillectomy, this lateral action of the constrictors is highly significant

3 The palatoglossus muscle serves two purposes first, in cooperation with the palatal elevators, to maintain a proper tension of the palate at any position of elevation, and, second, to lower the palate quickly as required in speech Fortunately when this muscle is injured in tonsillectomy, as it almost always is, the natural rest position of the palate, with the increased tension of the palatoglossus under the new conditions, both serve quite well to take the place in the speaking voice of the action of the palatoglossus

4 The soft palate varies considerably in length in respect to the distance to the posterior wall necessary to be covered on phonation Occasionally the soft palate is developed so short as to prevent it from fully reaching the posterior wall, in which case the person talks with an open nasal voice Since tonsillectomy often both shortens and stiffens the soft palate, the natural length of this structure may determine whether the voice of a particular tonsillectomized individual shall or shall not be permanently nasalized

5 All the faucial structures are not only nicely adjusted for the complex and often violent movements of this region, but the tissues are capable of a very considerable extension and of stretching to accomplish the distances to be covered This fortunate situation repeatedly serves to save the voices of tonsillectomized patients

PHYSICOMECHANICAL FUNCTION OF THE TONSIL

The mechanical significance of the tonsil (including the capsule) consists in its carefully planned work with reference to the placement and movement of the faucial muscles To look on the function of the faucial tonsil, including its capsule, as mainly a physiologicochemical function and to pass by its probably much more important physicomechanical function is to ignore such facts as the following

1 The firm capsule of the tonsil is most intimately and intelligently adjusted to the needs for placement and separation and mutual adjustment of the complex musculature of the region

2 The extent of surface covered by the capsule is essentially uniform regardless of the amount of lymphatic deposit

3 The weight of the capsule (as determined by careful studies) is a very considerable proportion of the entire tonsil structure, being with small tonsils at times even more than half the total

4 Neither the pharyngeal nor the lingual tonsils possess this elaborate capsule

5 The tonsil and its capsule form a necessary factor in the formation of a canal-like structure on which the direction, length, manner of action and

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* Read before the Section on Laryngology Otology and Rhinology at the Sixty Eighth Annual Session of the American Medical Association New York June, 1917

protection of the palatoglossus positively depend[1] Removal of the tonsil extracapsularly leaves the fate of the palatoglossus to the merest chance

6 The tonsil and capsule not only act as an important protective covering and brace to the thin delicate curtain constituting the palatopharyngeus muscle, but also serve to help fix and maintain the relations of this muscle to the lateral wall

7 The determination of the relationship between superior constrictor, the palatoglossus and the palatopharyngeus muscles and to the adjacent tongue and to the soft palate, is dependent chiefly on the tonsillar capsule For example, the capsule serves by its close insinuation into the acute angle made by the emergence of the palatoglossus and palatopharyngeus muscles from the palate to prevent mutual interference and injury and adhesion between these muscles

8 Proof of the value of the capsule as a support to the faucial muscles lies in the complete preservation of the anatomic relations following intracapsular operation, as compared with the distortions following extracapsular operation

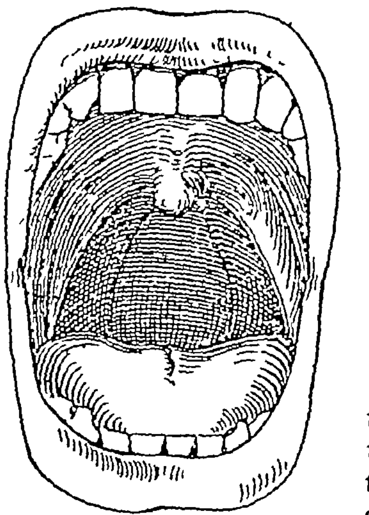
Fig 2 —How the posterior pillars in some throats hug the posterior wall on phonation thus closing off the nasopharyngeal opening laterally

The part played by the lymphatic tissue in this function is that of increasing the rigidity of the capsular support, and of serving as a protective cushion While the exactitude of certain of these relationships is subject to slight physiologic variation, the facts as stated remain essentially constant

THE INTRAPHARYNGEAL APONEUROSIS AND THE CAPSULE

Undoubtedly the tonsillar capsule serves the very purpose it would have to serve if it were in fact identical with the intrapharyngeal aponeurosis The question of exact identity of structure is unimportant, but the question as to whether or not it is possible to separate from the capsule, in performing the operation of tonsillectomy, connective tissues capable of serving fairly well the placement and protective purposes of the muscular fascia in this region is highly important Paterson[2] declares that the deep connective tissue of the tonsil becomes so closely adherent to the intrapharyngeal fascia that separation is impossible, and "any operation for complete removal of the tonsil must not only go outside the intrapharyngeal fascia, but sometimes take the peripharyngeal aponeurosis as well" Des Camps[3] states that "the intrapharyngeal aponeurosis or fascia forms a fibrous wall in the tonsil region, lodging the tonsil and called its capsule" Guttich[4] says

> In the histologic picture of the supratonsillar fossa no tissue, generally speaking, exists which could be differentiated as a tonsillar capsule The tissue back of the tonsil in this region is the fascia pharyngea or buccopharyngea It is a mistake to remove this tissue, which constitutes a supporting factor of the musculature

Our recent Fellow and friend, the greatly lamented G Hudson Makuen, believed that the intrapharyngeal aponeurosis and the tonsillar capsule were distinct structures and operatively separable This belief he reiterated in a letter to me a few weeks before his unfortunate death As many of us know, Makuen has at times exhibited tonsillectomized tonsils which clearly showed quite a thick layer of separable connective tissue over a part of the tonsillar surface The crux in the discussion seems to be not alone that the amount of separable tissue is very variable in different tonsils, but, what is of more importance, the surface of the tonsil is never covered by loose tissue over more than a very limited proportion of its surface Over especially the lower parts of the palatopharyngeus and the superior constrictor the capsule is thin, dense and intimately adherent both to the lymphatic tissue of the tonsil and to the muscular tissue on which it rests The looser intrapharyngeal tissue above the tonsillar fossa extends downward and merges into the tonsillar capsule, which extends toward that tissue in this region It appears to have been this limited extent of loose tissue above on which Makuen rested his argument

PALATOPHARYNGEUS AND LARYNX

The exact importance of the physiology of the palatopharyngeus muscle in its relation to the thyroid cartilage, and its stretching action on the vocal cords, is at this time not clear Theoretically its action in determining both intensity and pitch of the voice cannot be gainsaid But the complexity of the involved conditions leaves much yet to be understood In view of the rapid and frequent change of position of the palate, the manner of action of this muscle with respect to the thyroid cartilage is not easily comprehended The bearing also of the salpingopharyngeus on its action is not clear And, finally, the part played by its coadjutors, the stylopharyngeus, the stylohyoid and the hyoglossus make the subject complicated We may well presume that a muscle so large and so definitely inserted must have a purpose with reference to that insertion, if only to adjust accurately the relations between palatal action and vocal cord action Observation of the larynx and of its speaking voice in a large number of tonsillectomized patients in which the palatopharyngeus has been injured in all degrees has failed to show with any sort of regularity impairment in the action of the vocal cords that was visible to the eye or perceptible to the ear The few cases of seeming physiologic impairment in the action of the vocal cords were in no sense conclusive and may have resulted from other causes But two possible explanations of this lack of definite impairment in the movement of the larynx resulting from injury to the

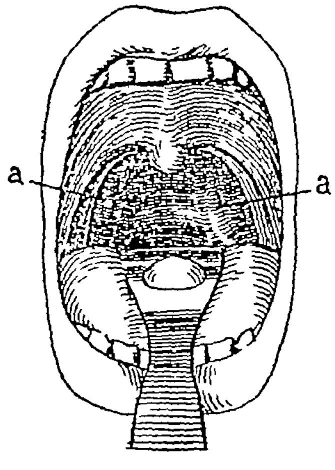

Fig 3 —How in some throats the constrictor muscles close in at the sides on phonation to shut off the nasopharyngeal opening, a mucous membrane of pharyngeal wall pushed inward by action of constrictors.

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1 Kenyon, E L, and Kradwell W T A Study of the Physicomechanical Function of the Faucial Tonsil, Ann Ophth, Rhinol and Laryngol, December, 1916

2 Paterson, D R Jour Laryngol, Rhinol and Otol, September, 1913

3 Des Camps, quoted by D R Paterson Jour Laryngol, Rhinol and Otol, September, 1913

4 Güttich, Alfred Ueber die Sogenannte Kaspel der Gaumen Mandel, Ztschr f Laryngol, Rhinol u ihr Grenzgeb, Jan. 25, 1915

palatal section of the palatopharyngeus are possible first, that the palatopharyngeus does not seriously affect the action of the vocal cords, at least so far as the speaking voice is concerned, or second, which is more likely that the muscles which co-work with the palatopharyngeus in its laryngeal action come instinctively into the breach and act as a substitue for the impaired palatal muscle

STUDY OF TONSILLECTOMIZED THROATS

The following report on tonsillectomized throats is based on the systematic study of 161 tonsillectomized patients The patients were of all ages, operated on by the various well known instrumental and technical methods and by about twenty operators The surgeons were mostly thoroughly experienced and some were unusually skilful, a small but unknown proportion were interns[6]

1 Neither palatoglossus nor palatopharyngeus muscles show more than very slight retraction namely the faucial region on both sides including pillars and palate were left essentially normal six patients 4 per cent

2 Both palatoglossi slightly to moderately retracted both palatopharyngei only slightly retracted or normal, two patients 1 per cent

These two groups representing essentially one in every twenty of the patients include all that showed the clean free practically normally appearing and acting fauces such as operators theoretically attempt to secure. All others were cases presenting very evident though by no means necessarily serious deformity

3 Palatoglossi moderate to marked retraction functionating in some cases slightly and in some cases not at all 150 tonsils 47 per cent

4 Palatoglossi completely obliterated having disappeared into the lateral wall 122 tonsils 39 per cent

5 Palatopharyngeus not perceptibly impaired, 149 tonsils 49 per cent

6 Slight to moderate adhesion of palatopharyngeus to lateral wall and moderate impairment of muscle, 106 tonsils, 45 per cent

7 Marked to complete adhesion of the palatopharyngeus to the outer wall decided and in some cases total incapacitation of muscle (with inevitable resulting tension and shortening of palate) forty-seven tonsils 15 per cent

As to the palatoglossus then in more than 50 per cent of the cases the muscle had ceased completely to functionate and in 14 per cent the muscle seemed quite free from impairment The palatopharyngeus was almost or completely incapacitated in 15 per cent and practically not at all impaired in 49 per cent The amount of tension, retraction and destruction to the palate was very important, and will be brought out in other connections

CASES SHOWING FUNCTIONAL IMPAIRMENT

A striking fact disclosed by this study is the great extent and degree of deformity possible without impairment of the speaking voice Fauces which show very little resemblance to the normal may still disclose no perceptible impairment in this direction In such cases the palate is apt to be unusually long, or perhaps adhesions have chanced to be favorably placed, or the palate is capable of unusual stretching Stiffening, and adhesive retraction of the palate, on which depend voice endangerment, occurred most seriously when adhesion of both pillars happened on the same side, and more especially when both deformities appeared on both sides of the same throat

The various ways in which the speaking voice becomes nasalized by tonsillectomy may be stated as follows

1 Through increased tension, adhesive retraction, or destruction of the palate that organ is unable to reach the posterior wall for phonatory purposes

2 The palate is long enough to reach the posterior wall, but, because of adhesions and tensions, the elevator muscles find the additional load so great that they do not draw back the palate the entire distance

3 A purely functional imperfection of action of the elevator muscles of the palate (this cause would be hard to prove because of the almost inevitable presence of deformity)

4 Owing to partial or complete destruction of the posterior pillars the closure of the nasopharyngeal isthmus laterally is incomplete, and the constrictors have not compensated for this failure by sufficiently increased action

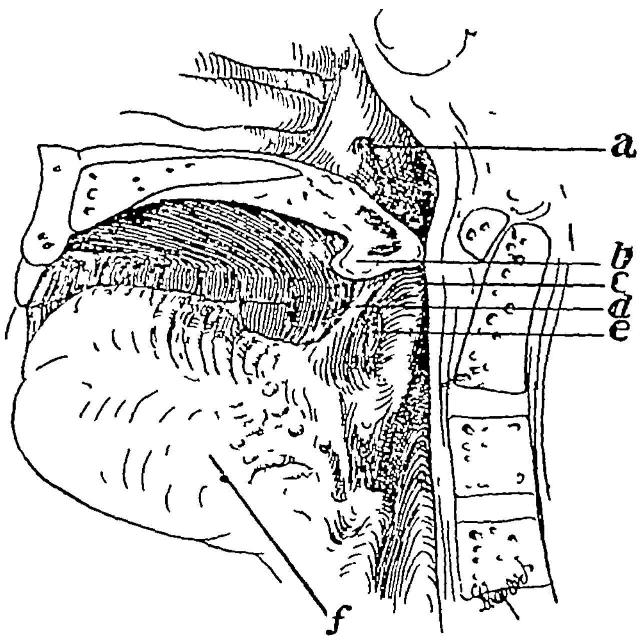

Fig 4—Obliquely lateral view of the right side of the throat when the soft palate is retracted in phonation, showing the action of the posterior pillar in closing off the nasopharyngeal opening laterally *a* eustachian orifice *b* uvula *c* posterior pillar *d* anterior pillar *e* tonsil

The singing voice would probably be impaired in all such cases and in many others similarly deformed, although the adhesions and tensions might be insufficient to impair the speaking voice

Thirty persons have been under observation for functional impairment of the voice, or throat, which might have a relationship to tonsillectomy Tabulation of these cases shows

In seven patients, voice nasalized for not less than eight months with permanent impairment to voice

In thirteen patients, all children, voice to some extent nasalized In some of these cases presumably the voice will be permanently impaired, in a large proportion probably the voice will clear up, in a few probably the voice results from childish carelessness

One nasalized voice in an adult, with considerable but not extreme deformity, cleared up in about four months

One adult has had a "tired" throat on talking with difficulty in speaking certain words for two years, and with marked deformity

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5 Included in this report are the forty three cases previously described by Dr Kradwell and myself and 118 cases recently studied In all 319 individual tonsils are reported on

6 Lest this study be open to misinterpretation it is well to say that the results most serious to the voice are in nearly every instance known not to have been the work of interns In two or three instances of serious result the particular operator in the institution in which the operation was performed whether attending surgeon or intern was not learned

One patient with "tired" throat recovered

One patient with "tired" and "dry" throat is much improved after three months with the prospect of recovery[7]

In one individual, an adult, one side of the tongue is paretic along its entire linear extent, but the voice is normal

One nasalized voice in an adult seems to be purely functional, although deformity exists

Four individuals have peculiarities of the voice probably not referable to the operation[8]

In children the impaired throats seem to show greater capability of readjustment than in adults The number of slightly open nasal voices in these children is notable, what proportion are due to mere childish carelessness, or to the functional effect of a former closed nasal voice resulting from adenoids, cannot yet be told But these open nasal voices occur most often where marked operative deformity exists, suggesting an underlying organic basis The nasalized voices may be recovered by (*a*) gradual increased strength of action of the elevator muscles of the palate, (*b*) further stretching of the palatal tissue, or (*c*) increased action of the superior constrictors—increase in activity of this muscle seems sometimes to be confined to the side presenting marked loss of function of the posterior pillar

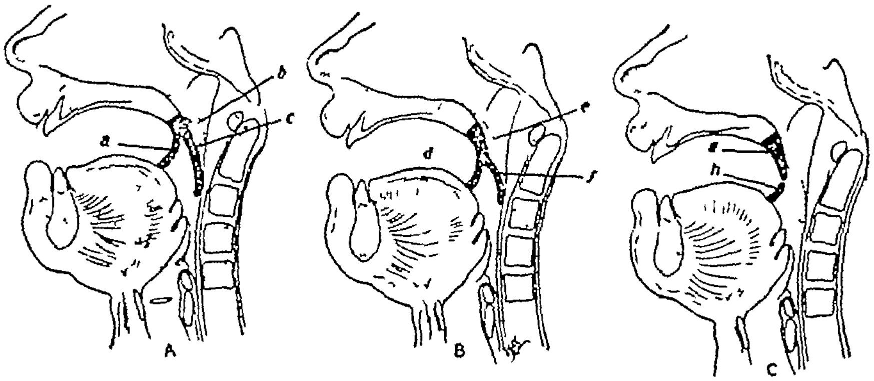

Fig 5—Schematic view of the side of the throat near the right lateral wall *A*, normal, *a*, anterior pillar, *b* position of posterior pillar when the palate is retracted, *c*, posterior pillar, *B*, retraction and adhesion of the anterior pillar holds the posterior forward moderately, *C* posterior pillar has been obliterated the soft palate at the side (*g*) is now ankylosed at its lower edge tightly to the lateral wall, the palate at the sides now being immobile in the position indicated, *h*, remnant of obliterated anterior pillar

RESPONSIBILITY FOR DEFORMITY

Whenever the deformities of tonsillectomized throats have come into discussion, they have uniformly been attributed to faulty methods of operating, or to lack of skill, or both While freely granting the seriousness of bad operating, I unhesitatingly assert that even perfect operating cannot save the throat from deformity and sometimes even from serious deformity The primary basis of deformity rests on the seriousness of the operation itself We operate in a field complexly muscular, and when we remove *the tonsil* extracapsularly, Nature's carefully planned scheme of intermuscular relationship tends to fall to pieces

Let us inquire regarding the situation in a throat which has been tonsillectomized with ideally perfect methods and skill

1 The palatoglossus muscle becomes now suspended to an unsupported ledge of mucous membrane which, under the stress of the movements of this region and later under the adhesions and drawing of the inevitable scar tissue, must tend to sag out of its normal course toward the outer wall, here it tends to become adherent, and must often become adherent its entire distance

2 The superior constrictor, now left unsupported with respect to its normal relationship to the tongue, the palatoglossus and the palatopharyngeus, in the stress of the violence of its natural movements, and later influenced probably by scar tissue formation, tends to be drawn into a closer bunch of overlapping muscular tissue, adjacent structures are thus pulled into more or less abnormally altered positions We all are familiar with the *manner in which* the tonsillar fossa mysteriously closes up after operation

3 The palatopharyngeus, which is the most important muscular factor in the situation, is perhaps subject to the least inevitable disturbance due to removal of the capsule And yet, *it also must* be disturbed in many instances The delicacy of this thin sheet of muscular tissue is in many cases extreme Its relationship to the superior constrictor and the entire lateral wall is determined after operation only by its posterior layer of mucous membrane, the muscular tissue lies at its exit from the palate in unprotected close relationship to that of the palatoglossus, the inevitable movement and the later scar tissue tend to dislocate its relationship to the outer wall and to involve it in adhesions with the palatoglossus And, more than this, owing to the closeness of adhesion of capsule and muscle fiber, the latter is apt to be torn or cut by the most skilful operator and hence the tendency to dislocation encouraged

Large sized tonsils, with their greater and stronger adhesive attachments, and also tonsils supported by large connecting bands of inflammatory origin, will both tend to increase the degree of inevitable deformity The exact estimation of this natural or inevitable deformity is, of course, impossible at this time on a large scale If any operator will carefully follow his delicately operated cases he may make this estimate for himself

If now we take into consideration the unavoidable difficulties which from time to time lie in the path of the most skilled operator, difficulties having reference *to anesthesia, to vomiting, to anatomic variations, to* field-obscuring hemorrhage, to severe bleeding, and to postoperative infection, any of which may unavoidably either interfere with, or else counteract, delicacy of operating and thus become the occasion of additional deformity, we shall understand still better the impossibility of totally preventing serious operative results Since the house of every operator is made of glass, he may well in fairness and even in self protection respect the fragility of the house of his neighbor Deformity capable of impairing both the speaking and the singing voice is possible to any operator It is this uncertainty of operative deformity which renders tonsillectomy on singers always serious

THE MECHANICS OF VOICE IMPAIRMENT

The exact *manner* in which the tensions and retractions and destruction operate to injure the voice may be explained thus

1 The retraction and adhesion to the lateral wall of the remains of the anterior pillar tend to pull the palate away *from* the posterior pharyngeal wall and to draw its lower edge tense, if this process is bilateral,

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[7] Since writing this article, the "tiredness" in this throat has returned, and is extremely annoying The patient is an adult and the operative deformity is slight

[8] Since a number of these voice cases were especially referred to me because of the voice impairment, I cannot draw conclusions even remotely as to their proportionate frequency in tonsillectomy

both tendencies are greatly augmented But if, under the circumstances, the posterior pillars remain intact, danger to the speaking voice probably occurs only in case of an unusually short palate

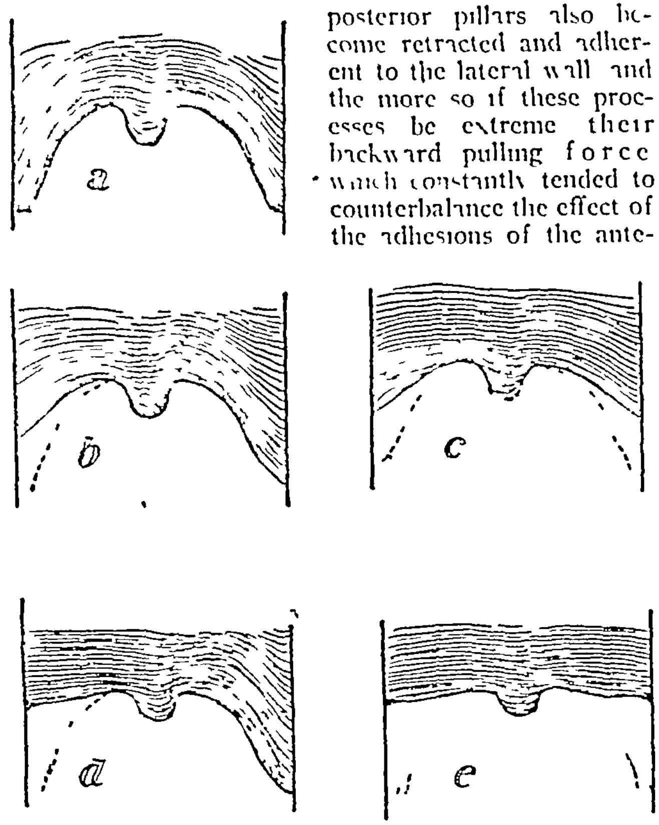

Fig 6—Schematic view of posterior pillar *a* normal *b*, partially retracted on one and on both sides *c* completely retracted on one and on both sides tension and retraction of palate progressively more marked in order to get the full significance of this manner of deformity one must consider the backward insertion of the normal posterior pillar

2 When, however, the posterior pillars also become retracted and adherent to the lateral wall and the more so if these processes be extreme their backward pulling force which constantly tended to counterbalance the effect of the adhesions of the anterior pillars just mentioned, becomes thereby released, and the retraction of the palate away from the posterior wall is greater In addition, the tension of the palatal tissues is augmented, and finally, the lower lateral portions of the palate are destroyed even in extreme cases to the point of complete destruction In these extreme cases of posterior pillar deformity, the speaking voice and, of course, the more easily impaired singing voice, is especially liable to be endangered The singing voice is theoretically endangered by tensions, which interfere with the easy subconscious running of the speech machine, long before the speaking voice

SUMMARY AND CONCLUSIONS

1 In view of the foregoing facts, any sound, conservative conclusion must show that, unless through the exercise of better technic or of greater skill, the deformities from tonsillectomy can be diminished, tonsillectomy is in a situation which if not alarming is at any rate serious If one case of important functional impairment, for example, of the speaking voice, were known to occur inevitably in each hundred or 200 or even 300 cases of tonsillectomy, our attitude toward the operation would become much more attentive and careful than it is today

2 In removing the tonsillar capsule we take out an important supportive structure on which the normality of the physiologic action of the soft palate largely depends Cases in which operation has been performed, as they exist, show a frightful amount and degree of postoperative deformity, dependent in large part on the very principle of the operation

3 Uncertainty as to operative complications leading to increased deformity is inevitable

4 Danger to the speaking voice necessarily lurks in the very nature of the operative conditions, and impairment to the speaking voice is inevitable in an as yet unknown percentage of cases

5 The danger to the singing voice from stiffness and adhesions begins theoretically, long before that to the speaking voice

6 The present situation calls for further intelligent efforts applied to technic and delicacy of procedure, and possibly to greater care in lessening postoperative scar tissue, in the hope that the adhesions and tensions may be decreased In the meantime the dangers to the possibilities of the artistic voice in children must apparently continue But, until the situation is further cleared up, for the surgeon to go on performing indiscriminately tonsillectomies on the throats of adults with singing voices of great beauty or of great importance to their possessors is for him to take risks which the artist himself would not consent to take did he know clearly the situation

7 The weakness of the present professional attitude in favor of the exclusive employment of the extracapsular operation lies in the fact that no evidence exists which proves that an operation aiming at a clean complete intracapsular lymphidectomy, namely, complete removal of lymphatic tissue within the capsule might not prove to be practically as capable of eliminating infective dangers as the present extracapsular operation And such an operation would not only be free from serious deformity, but would be altogether a less serious operative procedure The opinion of French[9] that 80 per cent of tonsils could as well be operated on without extreme radicalism is probably true, and could probably be verified

8 In view, then, of the whole situation, and granting for the moment the correctness of the facts herein presented, must not the profession in justice to its scientific aims and mission turn toward the matter of developing a thorough though relatively conservative operation, which preserves undisturbed the tonsillar capsule? If such an experimental attempt should meet with success, as it probably would, the operator would have at his disposal both a conservative and a radical operative procedure, between which in the individual case he could make a rational choice Such an operation could practically always be employed in singers

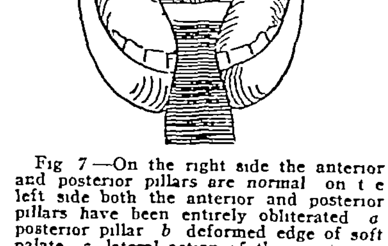

Fig 7—On the right side the anterior and posterior pillars are *normal* on the left side both the anterior and posterior pillars have been entirely obliterated *a* posterior pillar *b* deformed edge of soft palate *c* lateral action of the constrictor muscles attempting to take the place of the posterior pillar in closing the nasopharyngeal isthmus laterally the palate being in the retracted position.

104 South Michigan Avenue.

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[9] French T R Tonsillotomy versus Tonsillectomy New York Med Jour Dec. 5 1914

ABSTRACT OF DISCUSSION

Dr I W Voorhees, New York No one man can ever decide such a momentous question as this, and especially so if he is not a trained vocalist or elocutionist, or if he is not collaborating with vocal experts I have been frequently surprised to see destruction of the function of the anterior or posterior pillar, with no singing or speaking impairment, while in other cases having a good anatomic, postoperative result, vocal impairment was complained of The personal equation of the patient seems to enter largely into this question Every physician deems himself capable of operating on tonsils and adenoids Is it not surprising that the results of incompetency are not more manifest? If functional impairment were as common as the essayist would have us believe, removal of tonsils and adenoids would long ere this have ceased The term "nasalized" voice needs definition A part, at least, of every good tone is resonated through the nose In true nasalization all of the tone goes through the nose, *instead of part through the nose and part through the mouth* When the nasopharynx is held open by a forward-fixed soft palate, this is possible, but in most mutilations the soft palate is pulled upward and backward Poor results sometimes follow a good operation, and a good functional result may follow a rather poor operation We must standardize our technic Too many instruments have been devised for doing the same thing Laryngologists should get together and prescribe a classic procedure with such modifications as are necessary for unusual types of cases Then the man who violated these principles in striving to be too original would lay himself open to censure and, perhaps, legal action at the hands of his victims

Dr. Walter B Swift, Boston It seems to me that in relation to the soft palate the chief thing to secure is occlusion If one can operate so that easy occlusion is finally secured, the nasality is eliminated Of course, the great danger in operating in these resonance chambers is the destruction of quality Quality in the voice is that part which comes from the emphasis of overtones, not only that, but from the emphasis of tones which, if combined, make beautiful quality Now, it is the variation in these resonance chambers (the nasal cavities) which destroys this relationship resulting in quality I think that the acoustic background should be held in mind while doing this operation, especially in singers, because the great danger comes in removing any large mass of tissue, no matter where, that is in the resonance chambers By that removal the chambers are varied, and thus the overtones which make the quality are destroyed I would, therefore, sum up as the end and aim of any operation with relation to the speech or singing voice, that the change of cavity and the change of action should be avoided as far as possible, or constrictively put, preserve the cavity relations and functional muscle actions

Dr. H P Mosher, Boston I believe we have not reached the end of the technic in the tonsil operation My results have not been satisfactory to me I feel that another operation must come, that we should, as the essayist said, have two operations to fall back on—a complete operation for sepsis and an incomplete operation when we are dealing with a trained voice, and I make the prediction that in the future somebody will give us a modified technic whereby a part of the capsule is left in the tonsil fossa, probably the superior part

Dr Jacob Braun, New York Makuen, basing his statements on the work of Patterson, adopted the theory of the layer formation of the tonsil capsule This I have been able to verify clinically The capsule is split and when the tonsil is removed should be covered by a very thin layer of areolar tissue, the thicker aponeurotic tissue remaining to line the fossa By obviating the removal or injury of this thick aponeurotic tissue, which is part of the intrapharyngeal aponeurosis, the palatal muscles and the superior constrictor are not exposed to traumatism, and infection is avoided and the amount of scar tissue very greatly diminished Thus the resultant contraction and distortion are not as likely to occur Another factor in avoiding deformities as a result of the operation is the conservation of as much of the mucous membrane of the fossa as possible, removing only as much as actually covers the surface of the tonsil By doing this one-eighth to three-eighths inch of mucous membrane on the inner surface of the anterior pillar and the anterior surface of the posterior pillar may be conserved, resulting in folded over pillars and retaining the normal contour of the fauces The requisites, therefore, for a good functional and cosmetic result following tonsillectomy are an untraumatized and uninjured smooth fascial lining in the fossa, the minimum of mucous membrane injured and removed, which result in the least amount of scar tissue formation and contraction

Dr E L Kenyon, Chicago I have seen the layers of extracapsular tissues which Dr Makuen laid such stress on in the dissecting room and in the excised tonsil, but I have never seen them extending below the middle plane of the tonsil, and I do not believe the amount of loose tissue which could be saved would preserve the throat from deformity

PERSONAL EXPERIENCE IN THE SURGICAL TREATMENT OF INTESTINAL STASIS *

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Since Sir Arbuthnot Lane brought intestinal stasis into prominence, the literature about it has been prolific It has been approached from many points of view—surgical, medical and pathologic It is, of course, an old condition masquerading under a new name Smithies has called attention to the fact that the typical symptoms of intestinal stasis as described by Lane, such as muddy skin, headache, mental depression, lack of appetite, malodorous sweating, and abdominal aches and pains, are often absent in most pronounced cases of constipation, and that marked displacement of the large bowel, as demonstrated by the Roentgen ray, does not always cause constipation Pathologists generally have not sustained the extreme views of Lane That the symptoms as described by him do often exist, however, is common experience, but that they are caused by such marked changes in the colon as to demand its entire removal remains to be proved

Patients that are now classed as stasis cases were formerly condemned and avoided professionally and were labeled "abdominal neurasthenics" The serious treatment of these patients dates from the recognition of bands and of stasis by Lane, and from papers by Stanton, who brought forcibly to the attention of the medical profession the unsatisfactory results of operations for so-called "chronic appendicitis" in which the appendix was removed through a short incision and no other exploration was done Stasis, whether due to a band, ptosis of the colon, or kinks, may cause the same general complaints, consequently, the operations employed to relieve similar symptoms may be quite different

All cases of intestinal stasis should be treated by a competent medical man several months at least before surgery is resorted to If after six months of intelligent medical treatment little or no benefit is obtained, operation should be recommended This has been the criterion for surgery in the group of cases here reported, each case has been treated medically for several months, usually for several years, before operation was advised

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty Eighth Annual Session of the American Medical Association, New York, June 1917

The best method of determining the value of any surgical procedure is the careful analysis of a group of cases in which this operation has been employed No real improvement can be made until this is done, for often one may have the impression that certain operations are satisfactory when accurate statistics will show exactly the reverse Frequently, unusual results in a patient in whom a surgeon is particularly interested will make in regard to a whole group of cases, a subconscious impression that may be quite erroneous

This group of seventy-four cases dates from Feb 20 1912 to Jan 1, 1917 Reports have been received within the last sixty days from all except three In this series are included all of the Coffey, or hammock, operations, and all short circuiting operations performed within this period of time, except for cancer or tuberculosis, but only a small portion of the cases with bands has been included—only those in which there has been a very decided history of constipation, digestive troubles, and such other symptoms as usually make the clinical picture of intestinal stasis

Probably no two groups of surgical statistics are analyzed in exactly the same way and their value, especially when the results are based on the statements of the patients and not on obvious physical examination as in recurrence of cancer, depends as much on the manner in which the statistics are accumulated as on their interpretation afterward The report of the final results here largely depends on what the patients think of their condition This, of course, is not entirely accurate, but in a group of such cases it is the best that can be done Several, for example, that are classed as "unimproved" apparently are better In three instances, particularly, the friends and family physician of the patients think they are better, while the patients themselves report no improvement, so they are listed "unimproved" Others, doubtless, feel so much gratitude for the relief they have obtained that they probably make their report more rosy than it should be After all, these two factors largely offset each other When the family physician thinks the patient is not improved as much as the patient reports, the physician's statement is preferred

The cases have been classified as "greatly improved," "improved," or "unimproved" The term "cured" has been avoided chiefly because it might be questioned whether, in view of the comparative newness of the surgical procedures, there may not be a recurrence of the symptoms, though this is hardly probable in any large percentage of cases The cases that are marked improved" are those in which a considerable proportion of the symptoms have been relieved or markedly benefited Naturally these two types blend into one another, but it has been my endeavor conservatively to class as "greatly improved" only those patients who are practically well or have only one or two minor symptoms that have not been benefited The classification of "unimproved" consists of those in whom there is frankly no improvement or in whom the improvement has been so slight as hardly to justify other classification

Each patient and each patient's family physician were sent a stock letter requesting a report of the patient's condition and whether the symptoms have been relieved since the operation Two symptoms particularly inquired about were change in weight and the presence or absence of constipation, as these are less subject to psychic influences than the more indefinite complaints of nervousness, headache and abdominal pain, and hence they may be considered a fair indication of the patient's real condition

The replies from the patients and physicians have been tabulated and are on record, but for lack of space only a few will be reproduced The following two letters are from patients classed as "greatly improved," of whom there are thirty-four

REPORT OF CASES

Case 1—J L R, man, aged 28, had been constipated for twenty years and had gas on the bowels for the past seven years Recently he had had attacks of diarrhea alternating with constipation, and had suffered from sick headaches Everything he ate disagreed with him There was an itching sensation about the rectum which extended to the thighs and between the toes The operation consisted of removal of the appendix division of a Lane band, freeing adhesions around the sigmoid, and draining the gallbladder Twenty-three months after the operation the patient reports as follows 'Gained 50 pounds Began to take on weight about six months after the operation Have had no sick headaches and very little constipation Before the operation I had no appetite and rarely felt well Now I eat anything but nails with great relish and I do not believe there is a living man who feels better than I do"

Case 2—Miss B P, aged 26 gave a history of having had severe constipation since she had measles four or five years ago She suffered with indigestion gas, large lumps in the stomach followed by vomiting much mucus in the stools, and headache and dizziness for several days at a time She also had dysmenorrhea She would take large doses of purgatives with but little effect the bowels moving about once a week under strong purgatives The appendix had been removed previously without benefit The Coffey operation was performed as the colon was in the pelvis The patient reports four years and three months after operation "Gained 60 pounds Began to gain immediately Health has been almost perfect since the operation Occasional spells with bowels They swell up and cause some pain, but this does not last very long"

From the replies of those patients classed "improved," of whom there are twenty-four, the following letter is typical

Case 3—Mrs T J C, aged 30 gave a history of having been constipated for ten years She had nausea, occasional vomiting, indigestion and nervousness, and bad headaches all her life The uterus was curetted, the Coffey operation performed and a retroverted uterus was replaced by the Gilliam operation Four years after the operation the patient reports 'My general health is considerably impoved Have gained about 10 pounds This gain began about a year after the operation Constipation and headache has been improved but still have spells of both The constipation is not so bad but the headache is very severe at times The spells of headache do not come so often. Still have pains in the groins, but not so severe"

From the "unimproved" class, of which there are nine cases, the following report seems typical

Case 4—Mrs W S, aged 41 had been obstinately constipated for thirty years Medicines failed to give the desired result after about a year About eighteen years ago there was a fulness in the rectum which has grown worse For the last eight years the patient had suffered constantly She used the rectal tube for relief from pressure in the rectum She had hemorrhoids, and suffered with sick headaches, nausea and vomiting An appendectomy and a cecosigmoidostomy were performed The right tube was totally resected and the left tube partially so A small cyst was removed from the left ovary Two years and one month after the operation the patient reports as follows 'It is with regret that I must say that it [the operation] has proved to be of no benefit whatever I gained in weight what I lost from the operation

Constipation has been as great as before Headache is the same as ever Am never relieved from awful pressure in the rectum, my nights are bad, I get about one good night's rest in every two weeks My limbs and arms down to my little fingers feel like they are going to be paralyzed I have to continue the use of the rectal tube for relief"

In eight instances the ultimate result has been reported by the physician alone, the patient not being heard from In thirty-four cases the reports have been based on replies from both the family physician and the patients, and in twenty-five on replies from the patients alone Of the whole series of seventy-four cases, three have not been heard from Four of the series have died One died of pneumonia two years and two months after leaving the hospital, and three died while in the hospital Of these three, one patient died of pneumonia four days after the operation, and another died suddenly of what appeared to be pulmonary embolism twelve days after the operation She had been feeling well only a few minutes before death Both of these deaths followed a Coffey operation There was no postmortem in either case The third patient had been vomiting occasionally ever since the operation A few hours before his death the pulse quickly became rapid and feeble and the vomiting frequent There was little distention, but marked pain He died from what appeared to be some form of "heart failure" In this case, which was one of obstinate stasis with constipation, headache, abdominal and general pains and inability to perform the usual labor, the cecum was anastomosed to the sigmoid There was some thickening of the ascending colon The cecum was not unduly large, and there was not sufficient play between the sigmoid and the cecum after the anastomosis had been made Postmortem examination revealed several loops of ileum wrapped around the point of anastomosis had produced such tension on the line of sutures that a perforation had resulted, evidently a few hours before death, when the bad pulse and other symptoms occurred This was one of the early cases, and the necessity of having an extremely large and movable cecum and sigmoid for cecosigmoidostomy was not fully appreciated Since then no cecosigmoidostomy has been done except with a large dilated cecum, extremely movable, and when both the sigmoid and the cecum could be brought well out of a median incision, showing great relaxation of both these segments of the intestine This is the only death that could reasonably be attributed to the technic, and I think, in view of past experience, that it would be avoided now If I have a similar case, I shall resect the cecum and the ascending colon

TABLE 1—OPERATION AND RESULT*

Operations	No of Cases	Greatly Improved	Improved	Unimproved	Dead	No Report	Youngest Years	Oldest Years	Average Age, Years	Men	Women
Appendectomy and Lane band	22	13	8	0	0	1	18	57	32	7	15
Coffey	27	12	10	2	2	1	21	55	32⅓	2	25
Cecosigmoidostomy	17	6	4	5	1	1	18	41	28½	4	13
Coffey and cecosigmoidostomy	5	3	0	2	0	0	28	48	36	0	5
Ileosigmoidostomy	3	0	2	0	1	0	27	34	30½	0	3
Total		34 (46%)	24 (32 5%)	9 (12%)	4 (5 5%)	3 (4%)				13	61

* All of these patients were white except one, who was a colored man

In the seventy-four cases, there are sixty-one women and thirteen men They are subdivided into cases in which operations were performed as follows appendectomy and division of bands, 22, Coffey or hammock operation, 27, cecosigmoidostomy, 17, Coffey and cecosigmoidostomy, 5, and ileosigmoidostomy, 3

Many of these patients had been called "neurasthenics" The term "neurasthenia," like malaria, "liver complaint" and rheumatism, often covers a multitude of sins The more carefully such patients are examined the fewer so-called idiopathic neurasthenias are found Certainly, in the type classed by some as "abdominal neurasthenics," stasis is a frequent cause Many of this type have been practically cured by operation for stasis With one such patient, on whom the Coffey operation was performed, the attending physician was as anxious for relief as the patient was, and a gain of 60 pounds within six months after operation was accompanied by a practical cessation of neurasthenic complaints

Why, then, are not all neurasthenics with intestinal stasis cured by a surgical operation? For instance, in three of the unimproved patients in this list, such symptoms as mental depression, constant introspection, constipation, headache, emaciation and abdominal aches and pains were present in a marked degree before operation, and while there are apparent benefits from the operation according to the observations of the physician, friends and relatives of the patients, the patients themselves report their condition as unimproved and they are so classified It seems possible that as regards cure by relieving the original cause, the situation is somewhat similar to that which obtains in traumatic epilepsy It is well known that if epilepsy has become firmly established after such a trauma as a depressed fracture of the skull, the correction of the causative lesion does not often cure the epilepsy If, however, the lesion is corrected after the first one or two convulsions, the chances of complete relief are much greater There may be some such connection between abdominal neurasthenia and intestinal stasis, for the toxic products evolved by stasis evidently have some effect on the nervous system that is responsible for many of the complaints of the neurasthenic If this condition is permitted to go too long, such permanent changes may take place in the nerve cells as to prevent a cure, though by the establishment of normal metabolism and the elimination of the toxic products of stasis some improvement takes place

It is difficult to compare the results if viewed solely according to the type of operation, for, as has been said, similar symptoms were often produced by different pathologic conditions Stasis can be caused by bands, kinks, ptosis, a cecum mobile, or a combination of these Consequently, the type of operation was fitted to the condition found Cases in which bands exist without ptosis have frequently been classified under the head of "chronic appendicitis" These patients were formerly operated on by a short incision, and the appendix was removed As Stanton and others have emphasized often little permanent benefit results from this It is doubtful if such a condition exists as chronic appendicitis without a distinct history of an acute attack, or without bands, kinks or some other pathologic condition The removal of the appendix is undoubtedly indicated, but freeing bands and correcting other pathologic conditions are even more necessary Appendectomy was done in all stasis cases reported here, regardless of the type of operation

The three ileosigmoidostomies were performed early in the series In one case, Kellogg s suggestion of an end-to-side implantation of the ileum in the sigmoid in such a manner as to form a valve was carried out and this patient seemed to be somewhat benefited She died of pneumonia two years and two months after the operation Ileosigmoidostomy, however, was soon abandoned, as cecosigmoidostomy seemed to be far preferable J Rilus Eastman[1] has called attention to the value of this operation Anastomosis between the cecum and the sigmoid not only provides for short circuiting, but has the additional advantages of draining a large cecum and of protecting the ileum from the flora of the large bowel Several surgeons have reported that after an ileosigmoidostomy, the lower ileum enlarges, thickens, and apparently takes on some of the characteristics of the large bowel. This may be due to the ready access of the bacteria that are abundant in the large intestine, and partly also to the pressure of gas in the colon By preserving the ileocecal valve, as in cecosigmoidostomy, these changes in the ileum are avoided In addition, cecosigmoidostomy prevents the accumulation of fecal matter in the blind pouch of the cecum, which is a great objection to the Lane operation of short circuiting (ileosigmoidostomy) James T Case[2] reports a patient observed after a cecosigmoidostomy in whom the peristaltic and antiperistaltic currents of feces would produce a vicious circle It has also been objected that the opening between the sigmoid and the cecum tends to close, and John G Clark of Philadelphia and others say that but little if any fecal matter comes through the opening At least some of the fecal current and some gas should drain into the sigmoid, and this should aid in emptying the cecum, just as a gastro-enterostomy aids in draining a dilated stomach If the opening closes eventually but has remained patent sufficiently long to cause reduction in the size of the cecum, this improvement may be permanent In the only cecosigmoidostomy in this series, however, in which, because of a return of symptoms, a roentgenogram was taken several months after operation, the opening appeared to be closed

While intestinal stasis rarely calls for an extensive resection of the colon—in my own experience I have never seen a case in which I thought this should be done—there are probably instances in which excision of the cecum and ascending colon are indicated, particularly after a failure following cecosigmoidostomy In two patients an excision of the cecum was advised, but as there had been no benefit from the first operation, it was refused If it is done, the operation of W H Barber,[3] that is, preserving the ileocecal valve along with a small amount of adjacent cecum and joining this end-to-end to the stump of the ascending or the transverse colon, seems far better than the technic usually employed, namely, lateral anastomosis or end-to-side union without the protection of the ileocecal valve As I have attempted to show elsewhere, the operation of lateral intestinal anastomosis should be abandoned

In regard to ptosis, the Coffey, or hammock, operation is most satisfactory In eight cases, a few sutures were placed in the gastrohepatic ligament, according to the method of Beyea, just before the Coffey operation was done This held the stomach in position

The condition of the patient and the amount of time that has elapsed since the operation was performed are classified in Table 2 According to this table, there is apparently no material increase or decrease in benefit with the lapse of time

On the whole, I have found that cases with distinct bands and kinks without ptosis and without a dilated cecum give very satisfactory results from operation The Coffey, or hammock, operation for ptosis when there is no dilatation of the cecum is also exceedingly satisfactory The results from cecosigmoidostomy, though fairly good, have not been so good as in those cases in which only the Coffey operation was done

TABLE 2—LENGTH OF TIME SINCE OPERATION

Operation	Result	5¼ to 4 Year	4 to 3 Years	3 to 2 Years	2 to 1 Year	1 Year to 5 Months
Appendectomy and Lane band 22 cases. Reported 21 no report 1 dead 0	Greatly Improved	2	1	5	2	3
	Improved	1	0	5	2	0
	Unimproved	0	0	0	0	0
Coffey 27 cases Reported 26 no report 1 dead 2	Greatly Improved	1	2	3	3	3
	Improved	5	0	3	2	0
	Unimproved	0	0	0	2	0
Cecosigmoidostomy 17 cases. Reported 16 no report 1 dead, 1	Greatly Improved	0	0	1	4	1
	Improved	0	0	1	2	1
	Unimproved	0	0	4	1	0
Coffey and cecosigmoidostomy Reported 5 no report 0 dead 0	Greatly Improved	0	0	0	2	1
	Improved	0	0	0	0	0
	Unimproved	0	0	2	0	0
Ileosigmoidostomy, 3 cases Reported 2 no report 0 dead 1	Greatly Improved	0	0	0	0	0
	Improved	2	0	0	0	0
	Unimproved	0	0	0	0	0

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[1] Eastman J Rilus An Anatomic and Physiologic Method of Short-Circuiting the Colon The Journal A. M A. March 7 1914 p 747

[2] Case, J T Roentgen Studies After Gastric and Intestinal Operations The Journal A. M A. Nov 6 1915 p 1628

[3] Barber W H Interstate Med Jour 1917 **24,** No 1

The number of cases in which only cecosigmoidostomy was done is seventeen, the report showing five patients unimproved, four improved and six greatly improved, while after the Coffey operation alone there were two unimproved, ten improved and twelve greatly improved This does not necessarily mean that cecosigmoidostomy is less efficient than the Coffey operation, but that the cases in which it was indicated, because of a large distended cecum, are probably more difficult to cure than those in which there is ptosis of the transverse colon with but little change in the cecum However, I am now restricting the cases in which cecosigmoidostomy is done, and I think that in future many of the same type in which I have previously performed this operation will be more benefited by an excision of the cecum and ascending colon

Taking the general results, thirty-four patients have been greatly improved, twenty-four improved and nine unimproved Three of the patients have not been heard from There are four deaths, three while in the hospital, and only one that could be attributed to the technic of the operation It is probable that death would not occur in a similar case now All of these patients had been treated for a number of months, and many of them for several years, by medical measures with practically no benefit before operation was resorted to

Finally, I have been impressed with the value of cooperation between the physician and the surgeon in this class of patients, particularly in the after-treatment The regulation of diet, proper methods of personal hygiene, the ingestion of an abundance of water and the administration of liquid petrolatum should be carefully followed This will be done only under the supervision of the family physician Before operation, the same measures gave slight if any improvement in this group of cases, but when the pathology was corrected by surgery, they usually produced most gratifying results

ABSTRACT OF DISCUSSION

Dr. John W Draper, New York I want to show a series of three plates brought to me by Dr Robert M Brown who will tell you something further about them The plates serve to show the truth of what the essayist has said, that frequently following cecosigmoidostomy there is dilatation of the intestines I have followed Dr Whipple's work carefully but have failed to corroborate his theory of proteose intoxication in obstruction, and am able to present to you this outline which shows the chemical blood picture in duodenal obstruction dogs The rise in nonprotein nitrogen is immediate and characteristic, as is also the fall in alkaline reserve. One would not expect this sort of reaction in any bacterial condition It is significant proof that whatever the toxemia is, it is not bacterial Dr Horsley spoke of the role of the valves I do not consider the terminal portion of the intestine, where there is normal physiologic delay, as a mere mechanical structure I believe the ileocecal sphincter is 90 per cent. physiologic and 10 per cent mechanical or valvular in action I agree with Dr Horsley in many of these things, but do not believe that lateral stomata functionate unless the normal lumen is closed just aboral to them Except by such actual obstruction, it is not easy to divert the course of the intestinal contents

Dr. Robert M Brown, Saranac Lake, N Y In one of my cases, referred to by Dr Draper, there was a history of constipation since the patient was a girl Hydrotherapeutic treatment was given with some improvement at the time, when there was a recurrence and the same symptoms of profound autointoxication, the patient losing ability to attend to her home and to run her affairs, constant, increasing headache, nausea and serious loss of memory Cecosigmoidostomy was performed by a competent man Before leaving the hospital the patient said her symptoms were worse than before When she came to me she had a list of cathartics covering everything in the pharmacopeia One of the slides showed the patient after having been given a bismuth enema An hour after the bismuth had been taken it was found in the descending colon Following it for a hundred hours, part of it dropped out and passed through the rectum each time it came around the cycle. Another picture showed the bismuth enema and where the stomata were situated Dr Draper and I operated one year ago as follows We resected the immensely dilated pelvic colon and reunited the ends The usual developmental reconstruction of the colon was then done, the ileum being transplanted by lateral anastomosis into the transverse colon, after removal of the grossly diseased cecocolon The total mass resected was the length and diameter of a man's coat sleeve Nothing short of resection would have helped this woman, who for years before operation had been in the hands of very competent medical men. Since operation the patient is getting better very day At present she is taking 5 grains of cascara about twice a week and the bowels are moved normally While her physical improvement has been over 80 per cent., still more marked has been the mental gain

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THE DIAGNOSIS OF ACUTE PANCREATITIS

WITH A SPECIAL STUDY OF THIRTY-THREE CASES *

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In presenting this report of thirty-three cases of acute pancreatitis, gathered almost entirely in the very short period of three and a half years, it is my desire to arouse an interest in this condition and to demonstrate that to think of the possibility of acute pancreatitis in every acute case demanding abdominal surgery is to frequently make a diagnosis Errors of diagnosis here are mainly those of omission

There are more cases of the mild or the moderate type than of the severe fulminating type We wish to call particular attention to the milder types, as very frequently they precede the fulminating syndrome

While Korte and Barker state that males outnumber females in the ratio of 2 1, in this series 76 per cent of the patients were females

The most potent factor in the causation of acute pancreatitis is, no doubt, gallbladder disease, including cholelithiasis The frequency of association of biliary and pancreatic diseases has been variously estimated by different authors In this series this was true of approximately 50 per cent of the cases. This percentage would probably be higher were I to consider that in some of the cases the condition of the patient was so desperate that, on the principle of going in and getting out of the abdomen as quickly as possible, no time was wasted in examining the gallbladder or ducts, or in doing more than establish pancreatic drainage

What is the explanation of these associated lesions? Here a knowledge of anatomy and the relationship of the gallbladder, the pancreas and their respective ducts, is of prime importance Infection of the gallbladder continues along the ducts and secondarily infects the pancreas This is especally the case if a small gallstone becomes impacted in the papilla of Vater and this results in a damming back of the infected bile into the duct of Wirsung This has received confirmation at the hands of numerous workers Other causes of obstruction at the ampulla, such as duodenitis or neoplasm, may also favor the entrance of bile into the pancreatic ducts Dejerine believes that an infection that at one time can ascend the biliary ducts can at another time attack the pancreatic ducts Deaver states that in 25 per cent of cases not secondary to biliary disease, acute pancreatitis may follow appendical or other intra-abdominal infection by lymphatic extension and produce a pancreatic and peripancreatic lymphangitis

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* Read before the Section on Surgery, General and Abdominal, at the Sixty Eighth Annual Session of the American Medical Association, New York June, 1917

The classification of the different types of lesion, as described by Fitz in 1899, holds good today and cannot be improved on Acute hemorrhagic, acute gangrenous and acute suppurative pancreatitis are all phases of the same condition and not distinct pathologic entities In any of these types part or all of the gland may be involved We shall study the different types in the light of what is revealed on the operating table It is the living pathology that interests us as surgeons, for should the diagnosis have been missed before the opening of the abdomen, there is no excuse for overlooking the condition when the abdomen is opened

The symptoms of the onset are due to celiac shock and diaphragmatic irritation by pressure on an enlarged pancreas and hemorrhagic exudate The later symptoms are those of a peculiar toxemia, the nature of which has not yet been clearly defined The clinical history of the past condition of the patient will frequently reveal symptoms pointing to a cholecystitis, cholelithiasis, cholangeitis or a mild pancreatic attack Twenty per cent of the cases give a history of typical biliary colic, 50 per cent of mild pancreatic attacks, and a large majority give a clinical history simulating gallbladder dyspepsia We were formerly taught to recognize only the fulminating type

The onset of a severe attack is intensely dramatic Like a thunderbolt out of a clear sky, in a robust, obese and apparently healthy individual there is sudden upper abdominal pain, accompanied by vomiting, rapid and marked collapse and shock Marked constipation and abdominal distention, simulating intestinal obstruction, follow at once Symptoms of pseudo-ileus progress and there is marked cyanosis and lividity, shallow breathing and marked dyspnea The pulse is rapid The pain, which was at first excruciating in character, may, after twenty-four or forty-eight hours, abate The vomiting, which is persistent during the first twenty-four hours, also lessens, while the hiccups and belching, which are due to diaphragmatic irritation, persist

In the event of the patient surviving a severe attack, after a period of three or four days symptoms of gangrene or suppuration may supervene The hyperacute symptoms subside and the phenomena of acute upper abdominal peritonitis appear Usually there is marked obstipation, the result of toxic ileus, the abdomen is distended, there is tenderness in the epigastrium and left lumbar region with slight rigidity of the left rectus, and a swelling in the epigastrium or the left lumbar region may appear If suppuration ensues, fever, chills, a high leukocytosis, weakness and emaciation make their appearance

The moderately severe or the mild types of acute pancreatitis can be diagnosed only by a close study and an analysis of the individual symptoms I here desire to reiterate that to think of acute pancreatitis is to frequently make the diagnosis

While it has frequently been said that there is nothing pathognomonic about any sign or symptom which would lead to a diagnosis of acute pancreatitis, there is no pathognomonic sign or symptom in any abdominal condition It is the correlation of the syndrome and the analysis of each and every individual symptom that renders the diagnosis comparatively easy in the moderately severe or the mild types

Pain is the predominant and the persistent symptom and should be spoken of in the comparative degree It is more severe than in a perforated gastric or duodenal ulcer or a perforated gallbladder, and usually requires a large dose of morphin to afford relief During the attacks of pain the patient refrains from indulging in the slighest exertion, and this serves to differentiate it from the severe pain of renal colic At the onset pain is the dominant symptom and continues to grow worse and is constant It is of a splitting character, often as if the ribs were being pushed apart At the time of onset the pain is usually located deep in the midepigastrium, just above the umbilicus It often radiates to the back, and the patient complains of a splitting backache It never radiates to the right shoulder Vomiting accompanies and follows the pain, recurs at intervals in 80 per cent of cases at the onset, and the vomited material consists of bile Vomiting ceases within a short period As compared with intestinal obstruction, the vomiting is not progressive and is relieved by gastric lavage.

Collapse and shock are due to pressure on the celiac plexus They vary in intensity and in the severe cases are marked at the onset, as compared with the later appearance of collapse in intestinal obstruction Shock may be so extreme that the patient may die in a few hours Shock is very prolonged—more prolonged than in the case of a perforated viscus The period of shock is usually followed by exterme prostration, nausea and vomiting, weak and rapid pulse, cyanosis and marked systemic depression These phenomena of shock, when unaccompanied by abdominal findings of a severe perforative peritonitis, are suspicious or diagnostic of acute pancreatitis Twenty-five per cent of the cases that are sent to us are referred as cases of intestinal obstruction The reason for this is the fact that a toxic ileus is very frequently present at the onset of the attack It can be readily differentiated from mechanical intestinal obstruction by the passage of flatus, absence of increased peristalsis and lack of progressive vomiting A finding of extreme importance, which, in itself, is very suspicious, is the presence of a peculiar cyanosis and lividity of the face, the abdominal wall and the flanks

Physical examination reveals a tense and swollen abdomen, due to rapidly increasing distention, especially of the upper abdomen This is marked in 50 per cent of the cases and is due to intestinal paresis Abdominal tenderness is located in the upper abdomen, especially in the midepigastrium The tenderness is not as great as in a perforated viscus Rigidity is absent at the onset It appears early as a transverse resistance in the epigastrium and left rectus muscle As compared with a perforated viscus it is less marked and rarely of a boardlike character An abdominal tumor never appears before the third day, and this differentiates it at once from the early appearance of an acutely distended gallbladder When present, it is due in small part to the swollen pancreas, but mainly to the exudate about a gangrenous pancreas, it being the expression of a localized peritonitis in the lesser sac It is felt as an indefinite mass, extremely tender, situated in the midepigastrium above the navel, and because of the overlying stomach and colon, has a dull tympanitic note on percussion Tenderness in the left costovertebral angle is of extreme diagnostic importance and invariably means involvement of the tail of the pancreas This sign is important when taken in conjunction with the other signs An attempt to elicit this sign should be made in all cases of acute pancreatitis The temperature is also a diagnostic feature, differentiating it from a spreading peritonitis, in that it is normal or subnormal at the onset and only becomes elevated if suppuration or gangrene occur later on The blood shows a marked leukocytosis and polynucleosis, which persist in the gangrenous cases, even if the temperature remains normal

Given a case suspicious of acute biliary colic or acute gallbladder disease, it is absolutely essential to consider the possibility of an associated pancreatitis The pain of acute pancreatitis is greater, of longer duration, spread over a wider area, persists and grows worse, begins and is most severe in the epigastrium and is early associated with collapse, cyanosis, epigastric and left lumbar tenderness, absence of rigidity and absence of early palpable tumefaction

OPERATIVE FINDINGS

In a given case of acute upper abdominal disease simulating acute gallbladder disease or intestinal obstruction high up, when the abdomen is opened and the abdominal findings, such as palpation of the gallbladder or the absence of an obstructed loop of intestine are negative, you must at once look to the pancreas to explain the syndrome, and here one will find

1 A peculiar odorless "beef broth" fluid in the peritoneal cavity This was present in 60 per cent of our cases

2 Spots of fat necrosis, which appear as warty, yellowish-white plaques on the mesentery, the omentum or the pancreas These, when present, are absolutely pathognomonic of acute pancreatitis Frequently it will be found necessary to expose the pancreas to find fat necrosis Fat necrosis is explained as follows Hemorrhage within the gland destroys the acinous epithelium and basal membrane and allows the activated fat-splitting ferment to get into the tissues and split up the fats into fatty acids and glycerin These fatty acids, when combined with the calcium salts in the blood, result in the deposition of insoluble calcium soaps, which appear as spots of fat necrosis

3 Marked cyanosis of the small intestine, in the absence of mesenteric thrombosis or mechanical obstruction, is very suspicious and should lead to an investigation of the pancreas

4 A change in the consistency of the omentum, the loss of its peculiar oily or fatty feel, and the acquisition of a peculiar granular or gritty consistency This sign was first described by me in 1914 before the Brooklyn Surgical Society

5 The pancreas is soft, enlarged and thickened, and on exposure shows areas of fat necrosis or dark areas of hemorrhagic fluid beneath its peritoneal covering

PROGNOSIS

The prognosis depends on the recognition of the mild or the moderately severe type of the disease because it is then that surgical interference will effectually drain the pancreas and prevent the fatal attack, which is so characteristic of most of the severe cases

In our first series of sixteen consecutive cases in which we operated up to June, 1915, we had a mortality of 62 5 per cent

In our second series of fifteen cases since June, 1915, the diagnosis having been made in 75 per cent of the cases, there was a mortality of 13 6 per cent

There were two cases in which we did not operate as the patients were in a moribund condition when admitted and promptly died

Our mortality statistics show the importance of prompt diagnosis and the timeliness of operative procedures

OPERATIVE TREATMENT

Operation is indicated in all cases, unless shock is extreme, and very rapid operation is of extreme importance The condition of the patient will determine when any gallbladder operation otherwise indicated should be done

The pancreas may be exposed by any one of four routes (1) through the gastrohepatic omentum (which is preferable), (2) through the transverse mesocolon, (3) through the gastrocolic omentum, and (4) in the late stages, when pointing, through the lumbar region

Operation consists of multiple punctures of the pancreas with blunt forceps and drainage of the gland with rubber tissue and gauze, as if it were an acute phlegmon The omentum is closed around the tube

POSTOPERATIVE TREATMENT

The postoperative course consists of a strict antidiabetic diet and sodium bicarbonate to reduce the pancreatic secretion We would strongly advise keeping the patient under supervision for several years owing to the possibility of recurrences of acute attacks and the development of cyst formation or chronic pancreatitis

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ABSTRACT OF DISCUSSION

Dr John B Deaver, Philadelphia This is an important paper, read at an important time, when medical men are treating diseases of the gallbladder and holding the patients until the infection has too often gone beyond the gallbladder This paper should be a warning to medical men I am sorry this audience is not one of medical men as well as of surgeons We will in time influence the medical men to be more radical

Dr Linder has brought out the fact that the gallbladder holds an important place in diseases of the pancreas I believe that the most common cause of acute pancreatitis is retro-injection of bile through the duct of Wirsung I also believe that the duodenal contents are responsible for a percentage of cases of acute pancreatitis Furthermore, we must consider hematogenous infection I have seen two cases of circumscribed abscess of the pancreas due to infection of the lower abdomen The onset of the pancreatic infection was sudden and acute, the patient doing well after the abdominal trouble, when he was suddenly seized with acute pain referable to the epigastrium, with consequent symptoms of pancreatic involvement. I believe gallbladder infection is a common cause of disease of the pancreas In my experience I meet with four varieties of pancreatitis, the ultra-acute, the acute, the subacute and the chronic The ultra-acute are those in which the patients usually die I have seen these patients die while being transported to the operating table, and they die because of the extensive hemorrhage and the liberation of the pancreatic ferments, causing profound toxemia The acute cases are amenable to surgical treatment if taken promptly

I agree with all Dr Linder has said, with the exception of his remarks on lavage I do think lavage accomplishes something in acute pancreatitis in the way of temporary relief, but very little in comparison with what it accomplishes in vomiting from other causes

Dr. Ernest Laplace, Philadelphia In every case of pancreatitis we should know specifically if possible, whether the infection reaches the pancreas through the blood the bile or the lymphatics The nature of the micro organisms determines the clinical symptoms, hence there will be various clinical pictures of pancreatitis as there are of appendicitis Much difficulty however may result in the diagnosis when the condition has produced a mixed infection The most severe cases are due to streptococcus infection Hemorrhagic pancreatitis with great effusion of so-called froth and gangrene may result The pancreas has no capsule and hence great congestion of the pancreas would be followed by an exudation of a secretion which may spread to the whole abdominal cavity and create irritation and partial digestion of the structure We have met this condition several times, resulting in great thickening of a large area of the intestinal tract and also resulting in gangrene of the intestine Drainage of the abdominal cavity should be resorted to as the main therapeutic procedure Ileus paralyticus may result, simulating intestinal obstruction Our only hope should be very early interference for the purpose of draining the abdomen, even at the risk of operating before the precise diagnosis is made.

Dr William Linder Brooklyn I agree with Dr Deaver that one gastric lavage will not be sufficient in patients who have developed a toxic ileus But in patients seen early, there is not much recurrent vomiting The diagnosis and prognosis will improve with greater experience In our first series of sixteen patients operated on before June, 1915 we had a mortality of 62 5 per cent. The second series of fifteen patients operated on subsequent to that date gave a mortality of only 13 3 per cent In all acute abdominal conditions one must think of the possibility of acute pancreatitis I take issue with Dr Laplace who says that acute pancreatitis is necessarily a bacterial infection It is a chemically induced inflammation and bacteria only secondarily produce suppuration and gangrene The chemical irritant, which as a rule is dammed-back bile produces hemorrhage This destruction of the pancreas liberates trypsin and lipase, which ferments by their activation, lead to a peculiar toxemia and fat necrosis

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Hookworm and the Soldier—Stiles (*Public Heath Reports,* Aug 17 1917) directs attention to the possibilities of hookworm infection as affecting the troops now being recruited and trained He says that in a newly formed military unit recently mobilized a soldier was about to be disciplined by his commanding officer for shirking his duties the soldier claiming that he was not well. Stiles was asked to examine and pass an opinion on the man's condition The diagnosis of hookworm infection was made on the symptoms and it was confirmed microscopically After treatment the soldier promptly gained 8 pounds In the cases of ten other oldiers a tentative diagnosis of hookworm disease was made on the symptoms In a total of 75 military recruits recently examined by Stiles at a government reservation, 47 (63 per cent.) had hookworm infection, 3 *Ascaris lumbricoides* 1 *Hymenolepis nana* and 1 a heavy infection with *Strongyloides* 2 had double infections, 25 examinations were negative. The man with the *Strongyloides* infection was recommended for discharge from the service on the ground that no satisfactory treatment is known for this condition An ex-cadet from West Point failed by a narrow margin in his midyear examination, and theoretically Stiles says his hookworm infection was sufficient to account for his failure and the financial loss in his training sustained by the government Stiles says examination of recruits for parasites particularly *Strongyloides,* should not be omitted, and calls attention to the dangers and possible loss on this account.

Special Article

MODE OF INFECTION, MEANS OF PREVENTION AND SPECIFIC TREATMENT OF EPIDEMIC MENINGITIS *

SIMON FLEXNER, M D
NEW YORK

NUMBER, DURATION AND TREATMENT OF CARRIERS

(*Continued from page 645*)

Treatment—Carriers of the meningococcus are now recognized as the sole source of infection in epidemic meningitis The carriers may, moreover, consist of persons who have not had meningitis, or be persons suffering or convalescent from the disease We have seen that, left alone, the meningococcus tends of itself to disappear from carriers, the question has arisen whether the clearing up process can be artificially hastened

The means employed to promote the disappearance are essentialy two First, artificial immunization of the carriers through inoculation of killed cultures of the meningococcus It has failed completely Next, the application of antiseptic chemicals to the nasopharynx by swabbing, douching, spraying and vaporization With certain of these methods a considerable degree of success has been achieved

The list of chemicals employed includes potassium permanganate, chlorin water, formalin, iodin, zinc sulphate, and the chloramins The limitations surrounding local disinfection are imposed by the anatomic conditions which make it difficult or even impracticable to bring all parts of the nasopharyngeal mucosa under contact influence of disinfectants applied by swabs and douches And yet in some instances, application in this way has been followed by prompt disappearance of the meningococcus The case is somewhat different with sprays and vapors Both are or may be inhaled and hence drawn over the entire exposed respiratory mucous membrane In this process the vapor condenses and is deposited on the membrane, and a similar deposition follows the spraying The vapor method of applying chloramin and zinc sulphate has been developed by Gordon and Flack,[9] whose publication should be consulted for details of apparatus and procedure Their results will be summarized here In passing, it should be said that they state that when the carriers are not too heavily infected, the clearing up was distinctly accelerated by causing them to sniff up a 1 per cent solution of chloramin through the nose, expelling it through the mouth This exercise is to be carried out twice a day and combined with permanganate (0 1 per cent) gargling

The disinfectants employed for vaporization were chloramin-T, 2 per cent, and zinc sulphate, 1.2 per cent, in watery solution One liter of the solution is steam-sprayed into a room of 750 cu ft capacity in the course of from fifteen to twenty minutes, during which time the carrier remains there inhaling through the nostrils A single inhalation is given per day Chronic carriers, that had previously been under observation from three weeks to seventeen weeks, became permanently clear of meningococcus after inhalations of chloramin varying in number from ten to four The disappearance, in the majority of instances, took place on the ninth or tenth day The fewer the number of meningococci present, the more quickly, as a rule, were they suppressed But even when practically pure cultures were being obtained from the swab, suppression took from seven to ten days Among fourteen carriers treated in this way, three failed to clear up The zinc sulphate vapor was more effective in lightly than in heavily contaminated carriers The former became free in from two to eight days, the latter requiring from eighteen to forty-two days

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* From the Laboratories of the Rockefeller Institute for Medical Research

* *As the subject matter of this article is of timely importance, the reprints have been prepared in advance of the publication in* The Journal *and can be had by sending a stamped self addressed envelope to this office or to the author*

[9] Gordon M. H, and Flack, M English Report, p 77

The very distinctly encouraging results thus achieved are offset somewhat by the difficulties surrounding the method of applying the sprays With a view of obviating them and making the application of chloramin in an enduringly active form a simple procedure, Dunham and Dakin[10] have devised and recommended a solution of dichloramin-T in oil applied by means of a hand spray designed for paraffin oil With such a spray, it has been found possible to render the nasopharynx sterile for aerobic bacteria in a few hours Subsequently, bacteria reappear, of course, from the dust, etc Thus far, only a small number of tests on carriers of the meningococcus has been made, but the results are promising The method of procedure is given below

1 The nose is cleared with salt solution or with 0 25 per cent aqueous chloramin-T solution either by spraying or irrigation The nose should be blown into a handkerchief between applications, and the chloramin-T solution should be used thoroughly as a gargle

2 When the increased flow of secretion from the nose has subsided, the oil solution of dichloramin-T is applied with an oil atomizer The oil spray should be repeated at intervals so as to make at least four treatments daily about equally spaced from each other The spraying should be thorough and the oil carried to all parts of the membrane accessible The first few applications of the oil sometimes occasion sneezing, but tolerance is soon acquired and subsequent applications cause no inconvenience

3 The preparation of the dichloramin-T oil embraces three steps First the solvent eucalyptol (United States Pharmacopeia) is chlorinated Five hundred c c are treated with 15 gm of potassium chlorate and 50 c c of concentrated hydrochloric acid for twelve hours or longer, and then well washed with water and with sodium carbonate solution The water is drawn off and 15 gm of dry sodium carbonate are added to the oil and the whole is allowed to stand for twenty-four hours The oil is filtered off, and dried with a little solid calcium chlorid, when it is ready for use

Second, the paraffin oil is chlorinated To 500 c c of commercial paraffin oil, 15 gm of potassium chlorate and 50 c c of concentrated hydrochloric acid are added and the mixture is exposed to light, preferably sunlight, for several hours It is then transferred to a separating funnel and washed successively with water, a solution of sodium carbonate, and again with water The opalescent oil is drawn off, solid calcium chlorid added, in small quantity, and about 5 gm of animal charcoal On subsequently filtering through paper, a yellowish oil ready for use is obtained

The third step is the preparation of the oil solution of dichloramin-T for use in the spray Two-tenths gm of the dichloramin-T is dissolved in 2 c c of the chlorinated eucalyptol without heating When the solution is complete, 8 c c of the chlorinated paraffin oil are added After mixing, the solution is ready for use The solution contains 2 per cent of dichloramin-T It is relatively unstable, and should be discarded as soon as a distinct precipitate makes its appearance An opalescence or moderate cloudiness is not evidence of material deterioration It is a safe rule not to use the completed solution for more than three or four days after its preparation It should be protected from strong light and is best kept in a cool place Where large quantities are needed, a stock 10 per cent solution of dichloramin-T in eucalyptol may be prepared and kept on hand in a cool, dark place for dilution with the paraffin oil, as 1 4, as required The eucalyptol solution will suffer little deterioration in a month

Summary—This would seem to be the proper time and place to bring together and present the essential practical points regarding meningococcus carriers in military establishments The carrying out of bacteriologic measures for the detection of the carriers on a large scale will permit the release of 70 per cent or more of the persons swabbed on the basis of a single examination and within a period of forty-eight hours A second group will also be released after agglutination tests have been made with suspicious micrococci, which will take another day But where positive carriers have been detected, they should be detained and not permitted to return to their quarters or mingle with their units until subsequent bacteriologic examinations determine them to have become free These examinations should be two in number and made at intervals of from four to six days, and the release should follow on two successive negative findings In the case of convalescents, at least two negative cultures, taken at four to six day intervals, should be required before their discharge from hospital is permitted In the rare instances of long persistence of the meningococcus, such as occur among true chronic carriers, special rulings will need to be made It is to be hoped that with the perfection of means of chemical disinfection, the whole process of clearing up can be greatly accelerated

There can be no doubt that, as compared with general indiscriminate quarantine of men in quarters following cases of epidemic meningitis, the detention based on bacteriologic examination not only affords far more protection, but is saving in time, so that in practice the quarantine period is actually shortened

Finally, the question may be put whether the evidence is conclusive that carrier infection takes place and is frequent There are two ways in which this question can be answered First, by quoting incidence rates under camp conditions in which carriers have been sought, found and removed, and where this has not been attempted While examples are not numerous, the rates are smaller under the former circumstances Second, by following the cases of epidemic meningitis which arise in the course of the movements of the carrier This has now been done with soldiers going home on leave, sometimes only for a few days, and who, having infected wife, children, mother or other relatives, return to camp to be discovered to be carriers of the meningococcus[11]

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[10] Dunham, E K, and Dakin H D Brit. Med Jour, 1917, 1, 682

BACTERIOLOGIC DIAGNOSIS

Inflammation of the cerebrospinal meninges, or meningitis, is attended by changes in the cerebrospinal fluid which frequently become obvious to the naked eye A turbid fluid is taken to denote inflammation and, when epidemic meningitis is suspected, to be presumptive evidence of the existence of that disease But the conclusive indication of the nature of the condition is supplied by the demonstration by the microscope or in cultures of the meningococcus itself

The meningococcus was designated by its discoverer, *Diplococcus intracellularis-meningitidis* because of its affinity for the protoplasm of the polynuclear leukocytes present in the inflamed meninges This name is now little employed because of its inconvenience, but it is also something of a misnomer because the meningococcus not infrequently is present outside the leukocytes in the surrounding fluid The common experience is to find the micro-organism partly inside, partly outside the cells, but in some instances they are practically all inside, in others practically all outside of the leukocytes

The criteria at present acceptable as determining the bacteriologic diagnosis of epidemic meningitis are somewhat modified by the experience gained in the last years through frequent lumbar puncture and in connection with the serum treatment

Common experience has shown that the quality of the cerebrospinal fluid is not decisive, for while the fluid is usually turbid in epidemic meningitis and tends to be clear in tuberculous meningitis, lumbar puncture performed early in the course of the former infection may yield an almost perfectly limpid liquid

Similar experience has proved also that disparity may exist between the meningococcus occurring in the cerebrospinal fluid and the results of the cultures when the medium is in all respects favorable At times the micro-organism is found in characteristic form, staining property and position within leukocytes, and yet the cultures remain negative, at other times they are not detected in the microscopic preparation, and yet growth is obtained in the tubes

Explanation of this disparity presents no especial difficulty The meningococcus is an acknowledged fragile micro-organism, and is doubtless at times already injured or dead when observed under the microscope, the quantity of the cerebrospinal fluid brought under inspection with the microscope is minimal in comparison with the amount transferred to the cultures It is not, therefore, surprising that the meningococcus may be missed in the one place and yet come into view in the other

But the important question which presses relates to the criteria which suffice to establish a given case as being one of epidemic meningitis It is obvious that if the characteristic micrococcus appears under the microscope or develops in cultures, no doubt need be entertained Yet, it is desirable although not essential to subject the culture to an agglutination test with the polyvalent serum to exclude all possibility of error, since in rare instances, meningitis is caused or attended by gram-negative micrococci[12] distinct from the meningococcus When the case is one which has proved refractory to treatment with a reliable antimeningococcic serum it is still more desirable to perform the agglutination test

The attitude to assume toward such a given case in which the fluid removed by lumbar puncture is clear, in which meningococcus has not been detected in the centrifuged sediment, and in which cultures are not obtainable, is more difficult to define And yet it is just this kind of case which becomes immeasurably important with reference both to specific treatment and to prophylaxis Indeed, acute observation will discover a number of such cases which can be arrested by a timely injection of antimeningococcic serum

The solution of the diagnostic puzzle is furnished by the presence of the meningococcus in the nasopharynx In certain instances the symptoms of illness are attended by meningism, other slight signs referable to the nervous system will arise in detained carriers, such persons come at once under grave suspicion and should be treated with the serum without delay In other instances, the detection of the meningococcus in the nasopharynx, after the symptoms have appeared for the first time, points to the probable nature of the malady Here also the therapeutic indication would appear to be clear The procedure outlined is not based on theoretic considerations alone, but on actual experience in which the subsequent events, by making possible the demonstration of the meningococcus in the cerebrospinal fluid of such doubtful cases, proved the correctness of the deduction

Moreover, the agglutination test has added to the conclusiveness of the diagnosis in the class of case just described In several instances reported in which the meningococcus could not be grown from the cerebrospinal fluid, but was grown from the nasopharynx, the blood of the patient agglutinated the same type of meningococcus as was found in the nasopharynx, but not other types of the micro-organism

Finally, all cases definitely diagnosed epidemic meningitis on the basis of bacteriologic examination of the cerebrospinal fluid will yield the meningococcus on proper and prompt examination by cultures of the nasopharynx It is desirable, therefore, always to swab the nasopharynx at the same time that the lumbar puncture is performed Even in instances in which the cerebrospinal fluid is turbid, the meningococcus may sometimes escape detection, hence its discoverey in the nasopharynx is particularly significant and helpful

The cerebrospinal fluid is cultured in the sheep serum medium or other suitable medium described The usual procedure is to plant from 1 to 2 c c on the surface of a slanted tube When facilities are at hand, centrifuged sediment may also be used to spread over the slanted medium The tubes are at once incubated at 37 C for from twenty to twenty-four hours If negative, the fluid may be made to run over the surface again and the tubes incubated for another twenty-four hours Under circumstances in which very few or no micrococci have been detected in the fluid, a left over portion may be incubated at 37 C over night and then examined microscopically and planted on the slanted medium In this manner, negative may be turned into positive results, but especial care is required to avoid error through the accidental growth of contaminating micrococci

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[11] Flack M English Report p 58

[12] Micrococcus crassus flavus and catarrhalis and the gonococcus have been isolated from the cerebrospinal fluid.

SERUM TREATMENT

Preserum Mortality—The discovery of the bacterial cause of epidemic meningitis and the perfection of lumbar puncture have made it possible to establish accurately the degree of its fatality The earlier mortality estimates are less trustworthy, since they obviously could not have rested on such certain evidence of the nature of the disease The recent pandemic afforded, therefore, the first opportunity to determine the actual mortality of epidemic meningitis, as it affected countries and peoples of various nationalities and widely different social custom Accurate knowledge of the mortality becomes imperative once we undertake to determine the value of the serum treatment[13]

In the period of 1904-1909, epidemic meningitis prevailed over a wide territory in the United States and Canada, and after an intermission reappeared in the winters of 1911-1913 in the southwestern states, since which time it has prevailed fitfully and sporadically The representative fatalities recorded in the preserum period are Greater New York, 73 per cent , Boston, 69 per cent , Hartford, 76 per cent , several cities in Ohio, from 70 to 90 per cent , Porterville, Calif , 90 per cent , among 1,500 cases occurring in Texas and Louisiana, 75 per cent During this period the mortalities in great Britain were Leith, 74 7 per cent , Edinburgh, 80 per cent , Glasgow, 74 8 per cent , Belfast, 70 per cent In Germany they were Breslau, 62 3 per cent , Brieg, 42 5 per cent Flatten collected 3,085 cases of this period which gave a mortality of 67 per cent The mortality in France was placed at 75 per cent, in Belgium, 77 7 per cent, and in Italy, 55 6 per cent The figures for Asia and Africa are Palestine, above 80 per cent , Transvaal, 74 per cent What is striking in these figures is the little variation in the mortality as the disease attacked the mining districts of Northern Germany or the Transvaal, the industrial population of Ireland and Scotland, the city population of France, the military garrisons of Belgium, and the urban population of the eastern or the suburban population of the southwestern United States There is, however, one distinction that should be drawn such few accurate data as are available tend to indicate that the sporadic cases, as diagnosed bacteriologically, are somewhat less fatal than cases arising during an epidemic wave

Mortality Under Serum Treatment—The antimeningococcic serum began to be employed in 1906-1907, first locally, and then later more generally Thus it failed to be used in certain places before the epidemic wave had passed, and in other places, its employment was begun at the middle or height of the epidemic, according to circumstances Recently it has been administered in many and withheld in some cases occurring in the military garrisons of Great Britain and the other European countries at war Hence records have sometimes been available to serve as checks or controls over the figures derived from the serum-treated cases The latter figures do not differ essentially from those stated above for the preserum period

The antimeningococcic serum prepared at The Rockefeller Institute has been employed at home and in several foreign countries to which it was sent In 1,294 instances, the records of the cases, which were returned, were complete enough to permit an analysis to be made Of the number, 894 patients recovered and 400 died, giving therefore a gross mortality of 30 9 per cent

The larger number, or 1,211, of records were so detailed that it was found possible to analyze them according to the period of the disease at which the serum injection was begun (Table 1)

TABLE 1—ANALYSIS OF RECORDS OF MORTALITY UNDER SERUM TREATMENT

Serum Injected	*No of* Cases	*Recov*ered	Died	Recovered Per Cent	Died Per Cent
From first to third day	199	163	36	81 9	18 1
From fourth to seventh day	*346*	*252*	*94*	72 8	27 2
Later than seventh day	*666*	*423*	*243*	63 5	36 5
	1,211	838	*373*	*69 2*	30 8

These results, which are in striking contrast to those given for the period immediately preceding the employment of the serum, should be compared with the tables of mortality constructed in a similar manner by others who had large experience with the serum treatment Thus in France, Dopter[14] has analyzed 402 and Netter[15] 100 cases In Germany, Levy[16] has analyzed 165 cases, in Greece, Christomanos has analyzed 186 cases, and recently Flack[17] in England has analyzed forty-three cases occurring among the military forces in the London district

TABLE 2—COMPARATIVE MORTALITY REPORTED BY VARIOUS OBSERVERS

Treatment began	Flexner Per Cent	Netter Per Cent	Dopter Per Cent.	Christomanos Per Cent	Levy Per Cent	Flack Per Cent.
Before third day	18 1	7 1	8 2	13 0	13 2	9 09
From fourth to seventh day	27 2	11 1	14 4	25 9	20 4	
After seventh day	36 5	23 5	24 1	47 0	28 6	50

The accompanying tabulations illustrate the influence exerted on the mortality, and they are supported by quite large numbers of cases observed during 1911, 1912 and 1913 in Texas and Louisiana and abroad Thus in Texas the total cases reported from cities and countries, exclusive of the city of Dallas, were 1,956 Of them, 562 received no serum the mortality was 77 per cent , 1,394 were given one or more injections of the serum the mortality was 37 per cent Three cities in Texas gave the following results Galveston, eighty-three cases treated with serum mortality, 24 per cent , Houston, 169 cases treated with serum mortality, 27 per cent , Dallas, 624 cases treated with serum mortality, 26 per cent The epidemic in Shreveport, La , embraced seventy-four cases not treated with serum, with a mortality of 85 per cent, and 176 cases treated with serum, with a mortality of 30 1 per cent During this period, Levy in Germany studied an epidemic of which the mortality in cases treated without serum is given at 52 14 per cent, and of 165 cases treated with serum, as 18 18 per cent

The serum-treated cases are all comparable with each other except in the single instance of those reported by Flack For while the others represented the prevalence of epidemic meningitis among the general population, Flack's cases consisted exclusively of adults of the military personnel

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[13] Much of the matter which follows here is taken from Flexner, Simon, Jour Exper Med , 1913, **17**, 553

[14] Dopter, C Ann de l'Inst Pasteur, *1910* **24** *96*

[15] Netter, A , and Debré, R Le meningite cerébro-spinale, Paris, 1911

[16] Levy, E Klin Jahrb , *1911*, **25**, 121

[17] Flack, M *English Report, p 45*

Other Local Methods of Treatment—The serum treatment has not made its way without opposition and more or less fluctuation of favor It is very desirable that this fact be emphasized, because the same circumstances which have for a time carried the treatment backward in the past may operate again and suffice to do so in the future—and this notwithstanding the favorable figures given above

To succeed with the serum, first a potent product must be available, second, it must be applied promptly and in a systematic manner The chief obstacle to success with the serum has been imperfectly prepared, and hence impotent samples of the serum The only way to avoid that particular misfortune is for the federal government to establish and enforce standardization The disappointments and calamities of the English experiences early in the war, fortunately retrieved afterward when potent serum became available arose from worthless commercial products

Prior to the introduction of serum therapy, two methods of local treatment had been used

(*a*) Frequent evacuation of the cerebrospinal fluid by means of repeated lumbar punctures The effects following the procedure have been widely discussed, and seem to consist mainly in the relief of pressure, which is often very grateful to the patient The termination of the disease has not been essentially affected This is also the view of Netter, Goeppert and others who studied the epidemic at its height during 1904-1910 Indeed, it was during the period of high mortality that the method was chiefly employed in routine treatment With the failure due to impotent serum, in England in 1915 repeated lumbar puncture was again resorted to It was strongly recommended in some quarters,[18] and all the benefits desired from the serum were even attributed to its effects

(*b*) The injection of chemicals such as lysol and protargol into the meninges There are experimental reasons for believing that the introduction of chemical antiseptics into the subarachnoid space is capable of doing distinct harm[19]

(*To be continued*)

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[18] Foster M and Gaskell J F Cerebrospinal Fever, Cambridge, 1916

[19] Flexner Simon, and Amoss H L Jour Exper Med. 1915 23, 683

Accident Prevention and Welfare Work in a Large Industrial Plant.—The *General Electric Review* describes the organization and work of the medical department of the Schenectady plant of the General Electric Company which was inaugurated in 1907 Complete records have been kept since that time In the first half of this period there were twelve fatal accidents an average of 2 4 per year In the last half that is, up to and including 1916, the fatalities decreased to an average of 2 per year, while in the last five years the number of employees has increased 25 per cent. From 1907 to 1911 one man out of 6 100 met with a fatal accident, while in the last five years only 1 in 9 000 occurred In 1916 the fatalities were 1 in 10 000 In the latter year 13 716 examinations were made Every employee in every department is accepted only through the medical department. An accident in the Schenectady works means every case of injury even though only a scratch and must have the attention of the medical department to prevent infection In 1916 there were 13 190 accidents of all degrees of severity but only 36 were bed cases and only 11 serious enough to require an ambulance call Out of 21 000 men working with steam, electricity and machinery of all kinds only two were killed

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Military Medicine and Surgery

TRENCH FEVER

PRELIMINARY REPORT

MILTON MANDEL, M D
Major M R C U S Army Medical Director, U S Army Base Hospital No 12
FRANCE

During the past few months it has been my good fortune to observe several hundred cases of this extremely prevalent, carefully studied, but yet undetermined infection, known as trench fever The name is really a misnomer At first it was considered a result of trench life, and traumatic periostitis of the tibiae was thought to be the underlying pathologic process Today we know that it develops in troops that have not experienced trench work, indeed, it develops sporadically in individuals who have only occasionally visited training camps and convalescent hospitals

This so-called trench fever is a distinct clinical entity, and may be defined as an acute infectious disease of unknown etiology and self-limited course, characterized clinically by cyclic febrile attacks, intense headache and backache, and pains over the tibiae which are particularly severe at night

Etiology—The specific cause has not been determined Diplococci have occasionally been found in blood cultures, a spirochete has also been described, but neither is constant The possibility that lice act as the intermediate host is not remote One attack does not produce immunity

Symptoms—After a short incubation, during which period the patient may complain of slight indisposition, the disease is ushered in with a sharp rise of temperature to from 101 to 104 F, which may be preceded by chilly sensations, rarely by a true rigor and occasionally by vomiting, and is followed by headache, usually frontal, intense backache, and continuous and often excruciating pain over the tibia, with nocturnal exacerbations

The fever is quite characteristic in the individual case After a sudden rise the temperature reaches normal in the majority of cases in from twenty-four to ninety-six hours An afebrile period lasting from one to several days, sometimes a week, follows, and this in turn is followed by another febrile exacerbation This cycle is repeated a number of times, but it has been my experience that in a large percentage of cases the temperature is inclined to remain normal after the third rise As in other acute febrile diseases, I have met abortive cases in which the temperature reaches normal quickly after the initial rise, and does not again become elevated, also cases with more or less continuous fever, with slight remissions, closely resembling typhoid

Shin Pains—Of all symptoms of the disease, the shin pains are the most characteristic They appear early, are constant, extremely distressing, particularly at night, do not yield to therapy, and often persist for months after all other evidences of the disease have disappeared

Blood—As I have stated above, no specific organism has been isolated Lieut Marcus Neal, our pathologist, has occasionally been able to grow, by blood culture, a diplococcus, but not sufficiently often to justify definite conclusions He has not observed the spirochete described by some British writers The blood picture, however, is fairly characteristic During the febrile stage the leukocyte count reaches from 14,000 to 16,000 and drops to about 10,000 in the afebrile period The large mononuclear lymphocytes are increased to from 15 to 25 per cent, and the polymorphonuclears are proportionately reduced

Genito-Urinary Tract—The urinary findings during the febrile stage resemble those found in other acute infections, namely, decreased amount, high specific gravity, frequently albumin, and in severe cases hyaline and coarsely granular casts and red blood cells With the drop in temperature, there is polyuria The casts frequently persist long after the albumin has disappeared True nephritis has not been frequent in my experience

Other Symptoms—Sweating occasionally occurs, and herpes urticaria and roseolae are rare The sensorium is practically always clear I have never witnessed delirium Insomnia is common, but is due to the shin pains

Diagnosis—The diagnosis is made by recognizing the cardinal symptoms, namely, the typical fever curve, the shin pains, and the increase of the large mononuclear lymphocytes in the blood Physical examination reveals marked tenderness over the tibiae, with rarely edema of the overlying skin The spleen is not enlarged, but palpation over the splenic area elicits marked tenderness Heart, lungs, joints, glands and reflexes reveal no abnormality

When we consider the prevalence of this disease among the hardened and acclimated troops of our allies, it is fair to presume that our own men will be highly susceptible, unaccustomed as they will be to the work to which they will be subjected, to climate totally unlike that which they have previously experienced, and to sanitary conditions sometimes far from ideal

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THE PREVENTION OF SO-CALLED "SHELL SHOCK"

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"Shell shock" includes such a large proportion of the casualties in trench warfare that the advantage that would accrue from its prevention, if possible, needs no argument It has been said that it causes the greatest percentage of disabling "casualties" outside of wounds The exact number of cases probably has never been determined, for the question becomes largely one of diagnosis and classification The personal equation of the surgeon who makes the diagnosis is a large factor The neurasthenic type, for instance, is often classified as general exhaustion and breakdown instead of being ascribed to its true cause, shell shock The plan which I propose for its prevention is based (1) on quite extensive personal studies of cases made at the front and in the base hospitals in France and England, where I became familiar with the disease as it occurs in the present war, and (2) on my general knowledge of traumatic neurosis obtained through many years of professional study and practice

NATURE OF THE DISEASE

It is now the consensus of opinion that true shell shock, as distinguished from pseudo shell shock, differs in no way from the ordinary traumatic neurosis as observed after railway and other accidents, earthquakes, etc Trench warfare seems, however, to have developed certain types which are more frequent than in the accidents of civil life, although they also occur there

Being a traumatic neurosis, it is accordingly nothing but traumatic hysteria Types vary all the way from neurasthenia to profound paralyses and anesthesias

Among the cases erroneously classified as shell shock are undoubtedly many of an organic nature, due to actual injuries of the brain and spinal cord resulting from the soldier being violently thrown against some object, or from some other physical trauma Some perhaps are due to gas poisoning, and it is possible that some may be due to the sudden compression and rarefication of the air This, however, has not yet been proved All such cases should be classified as pseudo shell shock Much misunderstanding has arisen from confusing them with the hysterical type which undoubtedly comprises the vast majority of cases

CAUSATION

Causation, from the point of view of prevention, is of the utmost importance The causative factor is unquestionably psychic, that is, fear acting in a mind already prepared by environmental influences for the final results This preparedness of the mind to be influenced functionally under certain traumatic conditions, as a mental factor cooperating with the exciting fear factor, is also found in the civil cases Thus, it has been found that in railroad accidents very few of the employees (generally given as 0 5 per cent) suffer from traumatic neurosis, while a very large proportion of the passengers exposed do so suffer Likewise, I believe that traumatic neurosis is rarely observed on board battleships following the explosion of shells, although it is obvious that the traumatic conditions are similar to those obtaining in trench warfare

Shell shock should be more properly described as "shell fear" or "shell funk"

The theory on which any method of prevention must be based is that there exists among soldiers an anticipatory fear of what will happen when exposed to the explosion of shells, even when they are not physically hit or injured Anticipatory fear has been created by the environment, that is, by the common belief of their comrades, the attitude of mind, point of view, etc, shared by those with whom the soldiers come in contact, which would include the medical officers as well as the military officers It has been reported to me, although not directly from one in authority, that cases have occurred in men before they reached the trenches and before they had been under fire, and that these cases were due to anticipatory fear

The present general belief among soldiers is that shell shock is due to physical injury of the brain, that from the mere concussion of the air produced by a high explosive shell they are likely to be seriously injured in mind and body (loss of memory, dumbness, paralysis, etc), and furthermore, that when this hysterical state has been produced, they are more or less permanently incapacitated

In other words, the soldiers' idea is much like that which used to prevail regarding the pathology of "railway brain," "railway spine," etc , under the dominance of the concussion theory of Ericson

Even veterans acclimated to shell fire succumb to the fear of being buried alive and so injured Here we have what is practically "earthquake shock" Many soldiers are consequently in a state of continuous terror during the course of a bombardment by the enemy

That 'fear shock" can be entirely prevented is chimerical that a large percentage could be prevented is within the bounds of possibility and the attempt is worth trying especially as it would not require any elaborate organization beyond what already exists

PLAN FOR PREVENTION

The principle on which any plan is based must be the education of the soldier This therapeutic education should, however, be based on a preliminary systematic study, by a board of specialists in the psychoneuroses, of (*a*) the mental attitude of soldiers generally toward shell fire and shell shock, (*b*) clinical varieties of this psychoneurosis as it occurs in trench warfare, (*c*) its frequency and disabling incidence, and (*d*) the state of mind previous to the trauma of those suffering from it

On the basis of the findings of such a study, first, the regimental surgeon through lectures and clinical demonstrations, the cases in the hospitals being used for material, would be instructed systematically in the symptoms and pathology of the disease and the methods of psychotherapy for its prevention This instruction is essential because, I believe, few medical men who are not clinical neurologists or psychiatrists would venture to claim any competent knowledge of the psychosis Psychotherapy is an art requiring specialists for instruction The surgeons after instruction should have acquired a fair degree of skill in the application of the art

Second, the soldiers, including officers, could then, in units of, say, 100, in turn be instructed in the nature of the disease through lectures by the regimental surgeons It would thus be fully explained to the soldier that shell shock is a form of hysteria, that it is due to fear and not to physical trauma, that if not actually hit by a shell, and if no physical injury is sustained, there is little danger and nothing need be feared, etc

The work of instruction should be done in France in the atmosphere of war

In this way it is to be expected that an anticipatory attitude of mind of healthy preparedness (instead of fear and mystery) would be formed, and also that fear, when a shell exploded in the neighborhood without maiming the soldier, would be so minimized as not to produce the psychoneurosis

Of course, the plan is experimental, but it would seem to be unintelligent to accept the present situation as final, and that nothing can be done to avert the casualties resulting from fear To do so is to accept the theory of fatalism which obtained before preventive medicine came to the fore under modern medical science

Finally, it may be said that this instruction of the regimental and, later, of certain base hospital surgeons (which should also be undertaken) would be of great value to them in the treatment of the disease The fear of the disease and of being sent back to the trenches is undoubtedly a factor in the prevention of recovery

I have no idea that this suggestion I am offering will be adopted It will require the experiences of this war to prepare the official mind to accept the principles of progressive neurologic and psychiatric sanitation, just as it required the horrors of typhoid epidemics in the Boer War and in our Spanish War to bring about the education of the soldier in first principles and the adoption of methodical scientific sanitation against typhoid and other preventable diseases Every sort of objection probably will be opposed to such a campaign of education, notwithstanding that the education of the soldier (who, after all, is only one of the public) in such matters is only common sense, and reeducation has become the fundamental principle in modern prophylactic medicine, as well as in the cure of functional nervous disorders Nevertheless, I venture to bring forward this suggestion as a forerunner of the psychiatric sanitation of the future in all armies

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New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION W A PUCKNER, SECRETARY

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Determination of free chlorine—Place 10 Cc. concentrated solution of sodium hypochlorite Mulford in an Erlenmeyer flask and *dilute with 40 Cc water Add 20 Cc.* of potassium iodide, test solution. Titrate immediately with tenth normal sodium thiosulphate solution The number of Cc. of thiosulphate solution multiplied by *0 0373* equals amount of free *chlorine (in terms of $NaOCl$) in 100 Cc.* of the concentrated solution When freshly prepared the solution may contain about 0 2 per cent. of Cl (in *terms of* $NaOCl$) On long standing this figure gradually increases but *the solution may* be used with satisfactory results provided the amount of free chlorine does not increase beyond 1 0 per cent.

Determination of required boric acid—Place 20 Cc. concentrated solution of sodium hypochlorite Mulford in a flask add excess of potassium iodide and decolorize with tenth normal sodium thiosulphate solution Add 0 1 Gm of powdered phenolphthalein and titrate with a 4 per cent. boric acid solution using the first decided decoloration point as the end reaction From the figure thus obtained calculate the percentage of boric acid required for the lot in question This amount is stamped upon the label of the package

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Origin of Lenses—The first clear and unmistakable statements from which dates modern knowledge of lenses and their action are found in the works of Roger Bacon—The Microscope —Simon Henry Gage.

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SATURDAY, SEPTEMBER 1, 1917

THE ETIOLOGY OF SCURVY

Scurvy has long been looked on as a disease due to the lack of adequate quantities of some hypothetic antiscorbutic substance in the diet In the more recent development of the conception of "deficiency diseases" as disorders associated with a paucity or a complete absence of some essential dietary constituent from the ration, attention has become centered on a possible lack of those unidentified components for which Funk introduced the name "vitamins" The experimental demonstration on both animals and man that beriberi and experimental polyneuritis can be caused by the lack of such a food component and can in turn be relieved or cured by the inclusion of the missing vitamin in the diet paved the way for the extension of the vitamin hypothesis as applied to deficiency diseases Accordingly scurvy, pellagra, rickets and some rarer manifestations have in turn been explained as the outcome of a lack of some specific chemical substance essential for the metabolism of the subject

The scientific study of the so-called deficiency diseases has been somewhat hampered by the fact that the phenomena observed in man in the respective cases have not been easy to reproduce experimentally in laboratory animals In the case of the infectious diseases the bacteriologist is usually able to duplicate many of the symptoms, sufficiently at least to solve problems of etiology and pathogenesis, by animal inoculations The deficiency diseases have proved to be more difficult of imitation in an experimental way In the case of scurvy, however, the guinea-pig, when fed for a time on peculiar types of food mixtures, has been found to exhibit the characteristic features of the malady Holst[1] and his co-workers observed that a diet of oats alone or of oats and heated milk or oats and dried cabbage caused scurvy in the guinea-pig, whereas oats and fresh milk or oats and fresh cabbage will adequately nourish this species and maintain the animals in health It is largely on the basis of these and comparable observations that the theory has been advanced which is current at present regarding the high susceptibility of the antiscorbutic properties of natural foods to deterioration in a variety of ways Thus it has come to be taught widely that heating and drying are liable to destroy the vitamins supposed to be concerned in the prevention of scurvy, and by that easy extension from fact to assumption, of which the human mind is often so capable, the deteriorating effect of heat on vitamins in general has been widely proclaimed For this reason, heated milks, heated vegetables and canned goods of all sorts, including fruits, have been alleged to lose the vitamins they possess, as the result of the technical processes to which they have been submitted

The assumption of a detrimental effect of heat, such as is used in the ordinary cooking procedures, on the stability of the alleged antiscorbutic vitamin is menaced by recent observations of Jackson and Moore[2] in Chicago, for they noted—and this has been confirmed by others—that a large proportion of guinea-pigs kept on a diet of oats cannot be protected against scurvy even when fresh, unheated milk is furnished to them An important step in advance in unraveling the etiology of scurvy has at length been made by McCollum and his colleagues[3] at the University of Wisconsin They argued, in formulating a working assumption for their investigations, that all animals as highly developed as the mammals may be expected to require the same chemical complexes in the diet if growth and well being are to be attained Accordingly, guinea-pigs, the familiar test animals for the experimental production of scurvy, were fed on rations that had repeatedly been demonstrated to be adequate in every way for the rat Nevertheless, scorbutic manifestations appeared in many cases in the guinea-pigs For example, the oat kernel can be made suitable as a nutrient for rats if it is supplemented with appropriate protein, inorganic salts and the fat-soluble vitamin found in butterfat Yet on such a mixture guinea-pigs are very liable to develop scurvy in its severest types McCollum ingeniously remarks that if the current explanation is correct which makes scurvy the result of a lack of a specific substance, it becomes necessary to make the further assumption that the guinea-pig and man require this specific substance, since both are subject to the disease, whereas other species, including the rat, do not require this hypothetic complex as a dietary component

Obviously, as McCollum and Pitz[3] point out, there is an alternative explanation Scurvy may not be a deficiency disease at all in the sense which so many have assumed in the past few years Without employing any "protective vitamin" in the diet, the Wisconsin investigators have averted scurvy in guinea-pigs, or cured it when once it was manifest, by attempting to remedy a difficulty which scorbutic animals manifest at necropsy Usually the cecum which is very large and delicate in guinea-pigs, is found full of putrefying feces whereas the lower intestine is empty It was argued therefore, that the guinea-pig can thrive only on a diet possessing such physical properties as will lead to the formation of bulky, easily eliminable feces Diets containing succulent vegetables along with grains serve to keep the animals in good health Diets such as oats alone or oats with milk cause injury primarily because they lead to the formation of pasty feces which the animal is unable to remove from its delicate cecum An impacted cecum, the seat of putrefaction may permit injury to the cecal wall sufficient to permit the invasion of the tissues by bacteria or the animals may be injured by the absorption of toxic products of bacterial origin which possess the property of destroying the walls of the capillaries in those regions in which hemorrhage is characteristically observed in scorbutus Infection, which has been described as a feature of experimental scurvy, would thus be secondary to development of hemorrhagic areas

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[1] Holst, A, and Frölich, T Ztschr f Hyg u Infektionskr, 1913, 75, 334

[2] Jackson, L, and Moore, J J Jour Infec Dis 1915, 19, 478

[3] McCollum, E V, and Pitz, W The "Vitamine" Hypothesis and Deficiency Diseases A Study of Experimental Scurvy, Jour Biol Chem, 1917, 31, 229

As a matter of fact, by preventing debility of the digestive tract through stretching and contact with irritating and toxic putrefactive products of bacterial origin McCollum and Pitz have averted and cured scurvy in guinea-pigs This was accomplished in a variety of ways The administration of liquid petrolatum was very effective The use of the laxative phenolphthalein alone produced remedial results and thus served to exclude the possibility that the diets lacked some specific chemical complex of an antiscorbutic character Orange juice, which is so widely used as an antiscorbutic in infant feeding, has some protective or curative properties in the experimental scurvy of guinea-pigs Human scurvy is apparently more readily relieved by orange juice, perhaps, McCollum and Pitz remark, because of the greater disability of the guinea-pig in the possession of so large and delicate a cecum The action of orange juice is ascribed to its laxative influence rather than to any unique vitamin

Nothing in what has here been reported negatives the supreme importance of dietary factors of the vitamin type The contention merely is that scurvy is not in reality a deficiency disease in the sense of being caused by the lack of a specific protective substance We are reminded by the latest investigators that it is not possible to say with confidence at present that human scurvy has the same origin as has the same syndrome in the guinea-pig However, the undoubted fact, McCollum and Pitz assert, that some infants develop the disease while taking milk, which forms a wholesome food for others, supports the belief that the etiology of the disease is the same in the two species

THE SUPRARENALS AND SHOCK

Carefully obtained experimental facts often serve the beneficent purpose, in science, of compelling a reconsideration of debatable theories and, sometimes, a new formulation of working hypotheses Perhaps this will prove to be the case as the outcome of the recent investigations of Bedford and Jackson[1] at the University and Bellevue Hospital Medical College, New York, on the blood in shock According to these it appears that increased quantities of epinephrin are thrown into the blood during conditions of low blood pressure and shock This is quite the reverse of what might be expected from the widely current belief that the suprarenal glands are in a state of fatigue during shock

Various investigators have, in fact, contended for the view that shock is actually the result of suprarenal deficiency Bedford has remarked that the reports of diminished amounts of chromaffin substance in the glands of individuals exhibiting a depressed circulation are in complete accord with that explanation of shock which holds that the condition is due to a splanchnic dilatation of the blood vessels in the absence of epinephrin, with a consequent fall in blood pressure Bedford has found, however, that the apparent outpouring of epinephrin in shock is not merely a hasty discharge and depletion of the suprarenals, but since the quantity of epinephric material in the blood actually increases with the prolongation of the period of low blood pressure and shock, there must be an active secretion from the glands

Attention has already been directed in these columns to the views championed by Cannon and his co-workers which attribute importance to the suprarenal secretion as a reserve for times of special stress [2] Years ago Elliott suggested that the chromaffin tissue has the function of compensating for injury of sympathetic fibers, and that after sympathetic impulses fail, their place is taken by the epinephric stimulation of the nerve endings Bedford[1] interprets his observations in accord with somewhat comparable principles In shock, he suggests, the suprarenal function as a line of secondary defense against a falling blood pressure The presence of epinephrin in increasing amounts as shock progresses points, Bedford adds, to an attempt on the part of the circulatory system to redistribute the blood and bring about a peripheral constriction of the arteries wherever possible In this way the normal pressure may be retained If this self preservative mechanism is sufficient to offset the unknown factors which are instrumental in causing the fall in pressure, shock does not result fatally

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[1] Bedford E A. and Jackson H C The Epinephric Content of the Blood in Conditions of Low Blood Pressure and Shock Proc. Soc. Exper Biol and Med 1916 **13**, 85 87 Bedford E. A. The Epinephric Content of the Blood in Conditions of Low Blood Pressure and Shock Am Jour Physiol 1917 **43**, 235 257

[2] The Suprarenals and Vasomotor Tonus editorial THE JOURNAL A. M A March 7 1914 p 778 Newer Views of the Functions of the Adrenals July 25 1914 p. 322

Mann[3] has warned against overhasty generalizations associating shock with the endocrine glands He recalls the recent contention that the discharge of epinephrin from the suprarenals is not indispensable *to life or health It is asserted that* even emotional reactions may occur *several days after removal of all* suprarenal tissue Mann's tentative statement on the general subject deserves repetition In all probability, he asserts, some of the endocrine glands, particularly the suprarenals, enter as a factor in the complex condition of shock, but it is quite difficult to determine to what degree they participate as primary active agents in producing the state or how much they are affected by the low blood pressure and the changes incident to the condition itself

AN INDEX OF THYROID OVERACTIVITY

The human organism manifests a considerable number of phenomena which tend to assume a fairly constant character and form symptoms of ill health when they exhibit deviations from the well recognized normal performance Uniform temperature and pulse rate under conditions of rest have long been noted as normal features of the bodily functions, and aberrations are daily measured by the clinician as a guide to the character or progress of various types of sickness Unexpected variations in body weight likewise furnish indications at times of the existence of morbid processes Last week we called attention to newer modes of measuring that disturbance in acid-base equilibrium which leads to a depletion of the alkali reserve of the organism and is designated as acidosis [4]

Measurable abnormalities, such as those just cited, are common to numerous diseases Other symptoms, like nervousness or general lassitude, are often highly significant, but they cannot be expressed in any quantitative or otherwise distinctive manner It becomes decidedly important, therefore, to find some more accurate and specific indication which will assist in the precise diagnosis, and perhaps the subsequent prognosis, of diseases of the less obvious types In confirmation of classic studies by Du Bois[5] on this subject, Means and Aub[6] of the Massachusetts General Hospital, Boston, have lately shown in The Journal that the intensity of intoxication in exophthalmic goiter finds a measure in the rise of the basal metabolism This is one of the acquisitions to clinical medicine from the modern investigation of human calorimetry so efficiently prosecuted in this country, notably by F G Benedict, Graham Lusk, and their collaborators

The "basal metabolism" or heat production of an individual at the lowest level of metabolism can now be determined with considerable accuracy by indirect calculation from the data of the gaseous exchange The latter become available through determinations with comparatively simple respiration apparatus, such as many clinics now possess as a part of their scientific equipment The estimations are made in the postabsorptive condition (fourteen or more hours after food) at complete rest, whereby the stimulus to heat production incident to muscular activity or digestive changes is avoided As few pathologic conditions that are not easily differentiated from hyperthyroidism show a rise in the basal metabolism, this feature serves as one of the most striking and characteristic manifestations of overactivity of the thyroid Thus a novel index of the intensity of thyroid intoxication has been added to the hitherto recognized symptoms, including tachycardia, nervousness, loss of weight, and tendency to increased sweating

Using the measure of the basal metabolism in the way here suggested Means and Aub[6] have been able to observe the therapeutic efficiency of procedures currently recommended for the amelioration of exophthalmic goiter Judged by the heat production, rest alone usually causes a marked decrease in toxicity This may in some cases be supplemented by irradiation with the Roentgen ray According to the Boston observers, there is a very definite tendency toward recurrence of overactivity after the decrease which commonly follows surgical intervention They assert that drugs do not materially accelerate the effect of rest The indications for successful management coincide with the incidental observations of many clinicians, giving added emphasis to the importance of complete rest

MATERNAL DIET AND MILK PRODUCTION

When a lactating animal is secreting milk, obviously the protein which this fluid contains must be derived, in ultimate analysis, either from the proteins of the diet or from the tissue proteins This does not mean that food proteins pass directly into the milk, on the contrary, the proteins that are eaten become disintegrated into amino-acids even before they enter the blood stream for distribution in the body But in the last instance those proteins that are elaborated by the organism depend for their synthesis on a suitable supply of essential amino-acid which must be furnished preformed, whether they come from food or from tissues If the ration fails to contribute the adequate quota, the body must respond with its own resources, otherwise the supply of milk will fail

That there is a biologic difference between proteins from various sources has repeatedly been emphasized in The Journal Not long ago attention was directed to the interesting work of Hart and Humphrey[1] of the Wisconsin Agricultural Experiment Station showing that the character of the proteins in the ration, as well as their quantity, has a marked effect on the milk protein production of cows Comparable experience with nursing mothers has now been reported by Hoobler[2] as the result of observations as similar as possible to those made on dairy cows Hoobler concludes that the protein in a purely vegetable diet (not including nuts) of the most familiar types is both insufficient and inefficient for the maximum production of milk protein Vegetarians have introduced nuts very extensively into their special diets in recent years Hoobler believes that nut protein may be as efficient as animal protein in the elaboration of milk With this exception, however, he observed that the biologic sources of protein best adapted to milk production are found in animal products for example, in a mixture of meat, milk and egg protein, with an added quantity of cereal and vegetable protein comprising about one third of the total quantity furnished Milk protein in particular, affords the best source for the protection of the maternal tissue and the increase in the mammary secretion

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[3] Mann, F C Shock During General Anesthesia, The Journal A M A, Aug 4, 1917, pp 371 374

[4] The Newer Conception of Acidosis, Editorial, The Journal A M A, Aug 25, 1917, p 646

[5] Du Bois, E F Metabolism in Exophthalmic Goiter, Arch Int Med, June, 1916, p 915

[6] Means, J H, and Aub, J C A Study of Exophthalmic Goiter From the Point of View of the Basal Metabolism, The Jornal A M A, July 7, 1917, p 33

[1] Hart E B, and Humphrey, G C Jour Biol Chem, *1915*, **21**, 1916, **26**, 457 The Relation of Proteins to Milk Production, editorial, The Journal A M A, Nov 4, 1916, p 1374

Never has there been a time when the suggestions that present themselves in the light of the foregoing observations on milk production in woman were more deserving of earnest consideration The war situation, with the almost inevitable consequence of more or less stringent administration of food supplies, tends to force certain types of nutrients to the front as readily available, and is likely to curtail the use of other long valued foods Meats will become scarcer, and the supply of milk already is as low as dietary needs and physiologic safety will permit It will be well, therefore, to bear in mind the specific needs of the pregnant and nursing mothers and to make adequate provision for them at any cost Furthermore, it is not at all unlikely that the failure of many mothers to supply all the milk that is requisite to promote healthy gains in their young is quite as much a matter of diet as of any other physiologic factor Hoobler reiterates, what many students of the subject must often have believed, that the "diet of the first three or four weeks of the puerperium is based too much on what might be called sick room specialties, broths, gruels and tidbits of one kind or another which are not sufficient to support an increasing production of milk" The inclusion of at least a certain amount of milk, with its uniquely valuable protein, the salts of lime so much needed in the elaboration of milk and the development of the young, and the presumably indispensable vitamins, is a wise prescription In general, quoting Hoobler's words, one may state that a generous mixed diet, including nuts, milk, meat, eggs, with cereals, vegetables and fruits, constitutes a diet containing the potential factors for the maximum milk production

DRIED FOODS IN WAR TIME

The present war has served not only to stimulate science toward new discoveries and direct the arts toward new inventions, but also to bring back into current use some of the "lost arts" Nowhere, perhaps, has this been more conspicuous than in the matter of food conservation The comparative abundance of edible products in the immediate past, coupled with the liberal supply of the goods that procure such commodities by exchange, resulted in an extravagance and waste that have at length begun to be realized as the needs of an underfed world are being brought to our attention

Perishable foods are produced in all parts of the globe Their conservation by storage, canning, sun drying and desiccation has always been practiced, but among these methods, choice has fallen in recent times more and more to the canning process so that the other schemes have been abandoned and all but forgotten in quarters in which our grandmothers once practiced them in the days when modern facilities in the food industries and modes of transportation were not so universally available The successful storing of fruits and vegetables in city homes has become all but impossible Houses and apartment buildings are constructed with suitable arrangements for the storage of fuel sufficient usually for the needs of the entire year Facilities for the storage of food — the human fuel — are never thought of Heating devices have excluded the cold fruit and vegetable cellar of our boyhood days in all except the rural homes Similarly there was a time when conservation by drying found widespread application Some of the common fruits, such as prunes, raisins, figs, dates, apricots and apples, are staples in dried form in the world's markets They are, however, preserved in dried fashion in the industries rather than in the home

The government has lately engaged in an extensive propaganda to restore the lost art of food desiccation to its deserved place in the home[1] Sun drying, drying by artificial heat, or drying by an air blast, such as an electric fan or blower will furnish, are all within the range of possibility even for very small quantities of food Containers in the form of expensive tins or glass are not required The problem of room in storage is negligible, and the elimination of water excludes the possibility of freezing, with its incidental damage, and the transportation of a bulk of water The needed outfits can be simple and inexpensive Times of plenty and low prices can be made to prepare for days of emergency

Novelties in diet and in the culinary art inevitably find a wall of prejudice — the inheritance of tradition, habit and custom — that must be overcome The physician, who plays the rôle of sage in many homes, can do a useful service in helping to dispel the attitude of distrust or dislike for the wholesome foods that old methods, revived in times of war, may prepare for us.

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[2] Hoobler B R Problems Connected with the Collection and Production of Human Milk The Journal A M A Aug 11, 1917 p 421

[1] An excellent monograph on this subject may be obtained free from the Division of Publications U S Department of Agriculture It is entitled Drying Fruits and Vegetables in the Home, with Recipes for Cooking Farmer s Bull 841 June 1917 Washington D C

WHY WHEAT?

Wheat is a word to conjure with in these days. The Food Administration is making a strenuous effort to increase the production of this cereal in this country, and likewise to induce such economies in its use among our population as will enable us to share with our allies part of the total supply at a time when there is not wheat enough for all to have the usual amount of wheat flour. The tendency of Americans to concentrate in urban communities has led to a decrease in the per capita production of staple products. Thus the per capita production of wheat in the United States in the period 1906-1914 was 7.7 bushels per annum, a falling off of eight-tenths bushel per capita in comparison with thirty years before. There has also been a falling off in our relative exportation of such staple food products, with a corresponding tendency to home consumption.[1] This country has been becoming less able to feed other countries because it requires a larger proportion of the annual production to feed its own people. The crop of the all-important staple, wheat, in 1914 was unusually large, 891,000,000 bushels, so that the country was provided at the outset of the war with a large exportable surplus. Even better was the crop of 1915, which exceeded a billion bushels, but in 1916 there was a drop to 639,000,000 bushels, barely sufficient for home requirements, while the crop for the present year, in which the United States is more vitally concerned than ever before, is estimated at about 800,000,000 bushels, calculated to leave less than 200,000,000 bushels for exportation unless economies are practiced. There is a wheat shortage the world over.

Why, it may properly be asked, should so much emphasis be placed on wheat, among all the cereal crops? Is there some unique nutritional value in wheat not provided in comparable degree by other more available products? Would the substitution of other cereals to a greater or lesser extent impair the health or comfort of the needy nations? To these questions the physiologist of today must, we think, reply that the demand for wheat represents a psychologic and traditional impulse rather than any nonreplaceable need. Bread has been the "backbone of the diet of man" from time immemorial. Few of the cereals lend themselves satisfactorily to the production of a culinary product having the general texture, flavor and keeping qualities of bread. This is due in large measure to the chemical peculiarities of those proteins which make up the glutinous part of wheat, barley and rye. The baker at once places corn, oats and rice in a different category. Without some wheat flour, rye and barley flours cannot be used to good advantage in the manufacture of bread, although the mixed flours yield a palatable product. Most natives of our Southern States will insist, however, that corn breads are most acceptable, while to the rice-eating peoples the other cereals are far less palatable.

These indications are sufficient to suggest that a campaign of education might even succeed in altering inherited tastes. Corn, oats and rice have been popularized as breakfast foods in many quarters by the skill of the clever advertiser. Let us therefore examine the more purely physiologic aspects of the wheat question. The proteins of wheat flour consist of glutenin and gliadin in about equal proportions. Osborne and Mendel have shown that the latter is inadequate for the needs of growth, even though the protein is completely digested and well absorbed. Gliadin is comparatively deficient in its yield of the amino-acid lysin. The glutenin doubtless enhances the value of the total proteins of the wheat flour, although they still remain inferior to a mixture such as the total proteins of milk or eggs, for example. In criticizing the prevailing popular view that among cereal grains wheat is of superior nutritive worth, Hart, Halpin and Steenbock[2] have pointed to numerous experiments on mammals to the contrary. These leave little room for doubt that the wheat grain contains a mildly toxic material. In addition, the Wisconsin investigators just mentioned state that the wheat proteins are of inferior quality and may be responsible for some of the malnutrition that has repeatedly been observed when wheat has been fed excessively. Excessive wheat feeding to cattle or swine ultimately induces pathologic changes in the nervous tissue.[3] It has also been ascertained that young chickens tolerate excessive wheat feeding poorly, and then only when the mineral content of the ration is adjusted, the proteins of the wheat improved by the addition of casein, and a more liberal supply of fat-soluble vitamin furnished.

It would be an obvious exaggeration or misstatement to declare that wheat flour is an undesirable nutrient. The experience of generations contradicts this, and science makes no such unwarranted claim except for an exclusive diet in which wheat plays the chief rôle. Properly supplemented, wheat flour, like other cereals, becomes admirably adapted for use as a food. While something may be gained by raising the milling percentage so as to secure a larger extraction of flour from the wheat, the point to be emphasized is that no great physiologic deprivation is entailed by a restriction in the daily intake of wheat flour and a substitution of other more abundant appropriate sources of energy and protein

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[1] These statements are based on the statistics in the Columbia War Papers, Series 1, No. 6, Food Preparedness, by Henry R. Seager and Robert E. Chaddock, New York, 1917.

[2] Hart, E. B., Halpin, J. G., and Steenbock, H.: The Behavior of Chickens Restricted to the Wheat or Maize Kernel, II, Jour. Biol. Chem., 1917, **31**, 415. Hart, E. B., McCollum, E. V., Steenbock, H., and Humphrey, C. G.: Wisconsin Agric. Expt. Sta., Research Bull., **17**, 1911; Jour. Biol. Chem., 1912-1917.

[3] Hart, E. B., Miller, W. T., and McCollum, E. V.: Jour. Biol. Chem., 1916, **25**, 239.

It will require more than a few months or even years to dispel the popular belief in the nonreplaceable dietary virtues of wheat and to create a sympathetic attitude toward substitutes in the ration Stern necessity has presented a situation that calls for relief in the way of retrenchment in the use of wheat If a low bread ration is to be an inevitable outcome of the war either at home or abroad, let us keep constantly before the public the advice that not all nutrient virtue is limited to wheat bread and to meat No teaching can be thoroughly successful however, unless its truths are fully appreciated by those who attempt to inculcate them

Current Comment

A WORD FOR THE OYSTER

The advent of the season in which oysters return to popularity in the human dietary brings into prominence anew all the problems of hygiene and food value that cluster around these shellfish The floating of oysters will be subjected to critical examination, particularly with reference to the determination of what shall constitute adulteration Sometimes oysters are floated in the shell, shucked oysters may be washed with water before they are marketed, and retailers sometimes immerse open oysters in tap water from which they are sold after standing varying lengths of time An undue content of water acquired in any of these ways is quite as much an adulteration from the standpoint of the actual nutrients present as is the dilution of milk with water Yet, after all, from the standpoint of health the real menace in the practice of floating oysters lies not primarily in the decrease in food value but rather in the possibility of infection through the use of contaminated water Shellfish in certain localities sometimes exhibit a greenish color which has been attributed to copper It is true that oysters may contain this metallic element in measurable quantities Copper is a component of the colorless blood of many of the invertebrates, just as iron is a part of the hemoglobin of the red blood Investigations at the New Jersey Experiment Station[1] have shown, however, that various samples of shellfish, which are alike in showing the green color, are unlike in respect to the amount of copper present The metal may be absent from the colored substance in some cases, and some samples of uncolored shellfish may contain more of the metal than others which are colored There is, therefore, no reason to believe that the green color is due to copper At a time when all available forms of animal food must be rendered acceptable as far as possible, it is well to relieve the oyster of any undeserved opprobrium that may have been associated with a much investigated food

MOBILE CLINICAL LABORATORIES

An item representative of the application of modern science to the conduct of "military business" is the announcement that the Medical Advisory Committee of the Red Cross War Council has decided to equip five railroad cars for use as laboratories These laboratories will do emergency work in case of possible outbreak of epidemics in cantonment camps in this country Each car is to have a staff of five or more experts The cars will be so stationed that any cantonment can be reached within twenty-four hours on receipt of request from the federal or state authorities The laboratory is the handmaiden to the practice of scientific medicine In some conditions the laboratory findings may be of even more importance and of more value than those made by physical or clinical methods In the recent epidemic of infantile paralysis the medical profession received startling evidence of the increased importance of laboratory investigation The pathologist, the immunologist, the hygienist and the epidemiologist were drawn into conference on ways and means to combat the disease In the recognition of the first alarming signs of infectious disease, the laboratory is of primary importance Of even more importance is the detection by laboratory methods of those healthy carriers of disease who are the chief means of propagating and spreading the contagion It is this work which will probably occupy, to a great extent, the services of the laboratory cars

DO THE KIDNEYS CONTAIN SECRETORY NERVES?

The nerves of the kidney are derived from the sympathetic system, and the rich supply is distributed chiefly to the muscular walls of the renal blood vessels Nerve fibers probably also reach the uriniferous tubules of both the cortex and the medulla of the kidney, and their terminal fibrils are reported to penetrate between and even into the cells of the convoluted tubules themselves There seems to be no doubt that the plexus of nerves going to the kidneys has a vasomotor function which profoundly influences the work of the glandular structures in the formation of urine In view of the added histologic picture so suggestive of direct nervous intervention in the secretory work of the kidney, one naturally inquires whether or not secretory fibers exist for these organs Some time ago Quinby approached this question by the ingenious plan of studying the performance of a kidney which had been removed from the body and subsequently restored to its normal circulation by means of suture of the blood vessels In this way it is possible to be sure that the kidney is freed from all nerve control, for a time at least At varying periods after the operation, the function of the reimplanted kidney was studied by comparing it with that of the intact organ Sooner or later a normal performance in respect to urine formation ensued As it was repeatedly found possible for a single reimplanted kidney to maintain the normal existence of an animal after removal of the kidney on the opposite side, the evidence pointing toward the existence of specific secretory nerve fibers was rendered dubious if not actually negligible More recently the same investigator[1] has carried the study a step farther by examining the action of diuretics on reimplanted kidneys It seemed possible, of course, that diuretics which do not cause increase of general blood pressure may act by stimulation of secretory nerves if we suppose that they exist As examples of the three familiar types of diuretics, sodium chlorid in hypertonic solution, urea, and caffein or theobromin sodium salicylate were used A series of observations was first recorded from normal animals, after which the same method was applied to those bearing a reimplanted kidney It was found that the type of reaction shown by the normal and reimplanted kidney is practically identical for the same diuretic Here again, Quinby remarks, as in the series of observations already referred to, there is no evidence of abnormality on the part of the reimplanted kidney, its response to diuretics being the same as that of the intact organ In other words, the reimplanted kidney shows no evidence of loss of any possible secretory nerve influence The burden of proof of the existence of renal secretory nerves has thus been shifted to the shoulders of those who still maintain that there are such paths of influence to the gland cells

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[1] Nelson J The Copper Content of Green Oysters, New Jersey Stas. Report 1915 p 242

THE VENEREAL PERIL TO OUR ARMY

The serious havoc wrought among the armies of Europe by venereal diseases — in fact, among all armies not only those of today, but also among those of the past — has only recently been realized Now it is known that venereal infection is the cause of more sickness among soldiers than any other disease or groups of related diseases As Colonel Keefer says "Venereal infections are responsible for an enormous amount of sickness in the army — vastly more than any other cause — and constitute the most important health problem with which we have to deal" This, it must be remembered, relates to the time of peace Quoting from a special report by Vernon Lyman Kellogg[2] "Syphilis and the other venereal diseases are a scourge fostered especially by militarism" The Surgeon-General's Office has already worked out a program for the coordination of the activities available for the control of these diseases The reading of this program, printed in The Journal last week,[3] indicates that the importance of the problem has been thoroughly appreciated and that there need be no anxiety in this regard so far as it relates to our Army In working out this scheme of action, Surgeon-General Gorgas called to his assistance some of the leading specialists on the subject[4] The program, especially as it relates to prophylactic measures, necessitates the cooperation of the civilian authorities and especially of the civilian physician Gonorrhea and syphilis are preventable diseases Ultimately every case of either of these diseases among the men in the Army, if traced back to its origin, will be found to depend on a similar case in the civilian population Hence, unless the medical officers in the Army camps have the complete cooperation of civilians located in the communities surrounding the camps, it will be impossible for them to carry out the proper measures for limiting these diseases among troops Here lies the opportunity for the civilian physician to do his "bit" effectively He should be prepared to recognize these diseases in their early stages, and to see that the patients under his control are properly informed as to the dangers of transmitting the diseases The principles for the control of syphilis and gonorrhea are no different from those used to control other infectious diseases They involve the best possible care and attention to patients and the prevention of the spreading of infection from these patients to other persons in the community The important points to be emphasized are that the civilian physician should satisfy himself that he is thoroughly capable of making an early diagnosis of these cases according to modern methods of diagnosis, and that he should be ready to cooperate with the federal and state authorities in whatever efforts may be made to control and suppress this scourge County societies of the counties in which the cantonments are located should be especially alive to their responsibilities and opportunities

THE DISTRIBUTION OF GLUCOSE IN THE TISSUES

In the study of the peculiar fate of sugar in the diabetic organism, much attention has been directed to the altered concentration which glucose attains in the blood, to the conditions under which it is excreted by the kidneys during hyperglycemia, and to the possible alterations in the storage functions of the liver with reference to carbohydrate Comparatively little has been ascertained about the varying rôle played by the other tissues, notably the muscles which comprise three sevenths of the body weight and thus afford any opportunity for large differences, from a quantitative standpoint It is a well established fact that the diabetic is unable to burn up sugar as satisfactorily as the healthy subject It may properly be asked whether there is a possible difference between normal and diabetic organisms in their ability to hold carbohydrate in the form of glucose in their tissues Earlier observations on this question may be neglected here because the evidence which they afford is conflicting and unreliable Palmer[1] has reinvestigated the amount of carbohydrate existing as glucose in the tissues of animals under a variety of conditions At any one time the amount is almost always small Palmer has found that the concentration of glucose in the tissues varies directly with the degree of hyperglycemia The largest amount of sugar was found in the liver, and the smallest quantity in the brain, the difference being largely accounted for by difference in vascularity. The concentration of glucose in the tissues is invariably lower than the blood sugar except in the liver, in which the higher concentrations found may be explained by rapid glycogenolysis. In the muscles the amount of glucose is low, varying in normal animals between 0.04 per cent. when the blood sugar is 0.10 per cent. and 0.41 per cent. when the blood sugar reaches 1.05 per cent. after intravenous sugar, while in diabetic animals the muscle sugar falls within the normal limits even though the hyperglycemia rises as high as 1.43 per cent. Normal animals have a higher concentration of glucose in striated muscle than diabetic animals, when the levels of blood sugar are comparable. Palmer has properly emphasized his finding that diabetic animals present little difference in respect to glucose in muscles. The amounts found, he states, are small, and apparently not influenced by the type of diabetes or sugar administration. In view of the above-mentioned fact that, when comparative blood sugar values are considered, the muscle of the diabetic animal contains less glucose than the normal, Palmer has suggested that diabetic tissues are more impermeable to sugar than normal ones. Corresponding with this, sugar injected into the circulation of diabetic animals does not leave the blood so rapidly as it does in normal animals. But despite the increasing information as to the distribution of the carbohydrate in the body, the major problem of the failure to metabolize the sugar in one organism in contrast with the readiness of its combustion in the other still remains a perplexing puzzle.

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[1] Quinby, W C The Action of Diuretics on the Denervated Kidney Proceedings of the American Physiological Society, Am Jour Physiol, 1917, **42**, 593

[2] Kellogg, V L Military Selection and Race Deterioration published by the Carnegie Endowment for International Peace Oxford, the Clarendon Press, 1916, p 194

[3] Program of Social Hygiene for Soldiers to Safeguard Their Morals and Health, Outlined by Surgeon General's Office, The Journal A M A, Aug 25, 1917, p 654

[4] The Surgeon General's Advisory Committee consists of Dr William Allen Pusey, Chicago, chairman, Dr Francis R Hagner, Washington, D C, Dr Grover W Wende, Buffalo Dr S Pollitzer, New York, and Dr Henry H Morton Brooklyn This advisory committee has been working directly with Col F F Russell of the Medical Corps of the Army, under whose general directorship the matter comes

[1] Palmer, W W The Concentration of Dextrose in the Tissues of Normal and Diabetic Animals, Jour Biol Chem, 1917, **30**, 79

BIOCHEMICAL PROCESSES FOR SYNTHETIC CHEMICALS

The enormous expansion of the synthetic chemical industry has furnished a great profusion of new compounds in recent years. Many of these substances have found an application in modern medicine. Indeed, medical practice has come to depend to quite a considerable extent, both in its therapeutic and in its hygienic or prophylactic applications, on synthetic chemicals. It is interesting to bear in mind, therefore, that biologic forces are available for the production of chemical products on a scale that few not specially versed in the subject appreciate. Yeasts, molds and bacteria give rise to a great variety of substances as the result of their metabolism. The yields of some of the compounds are not infrequently considerable. It has been said that no factory can compete with micro-organisms in the economy of production of certain compounds. The use of the biochemical modes of manufacture is still comparatively unexploited. Already many substances of great technical value, such as ethyl alcohol, acetic acid, butyric acid and lactic acid, are prepared by biochemical processes. Currie[1] has recently shown that citric acid can be produced in surprisingly large amounts by the growth of the familiar molds of the *Aspergillus* type on mediums of comparative simplicity, sugar being the most essential source. It is not far fetched to look forward to the greater development of such fermentation industries whereby many of the substances now prepared by expensive synthetic methods may be more economically manufactured through the intermediation of biochemical processes.

MEDICAL STUDENTS AND THE DRAFT

For the last three weeks THE JOURNAL has been publishing statistics in regard to the relation of medical students to the draft, based on replies obtained direct from the students themselves. According to the replies obtained it was estimated that 8,983 (85.9 per cent.) of all students were registered and that of these 2,551 (28.4 per cent.) would be included in the first call. As stated last week, it was believed the latter estimate was too low. At the time our first questionnaire was sent out it was too early to obtain absolute facts as to what students were actually called or whether they were accepted or rejected. On August 23, therefore, as the examinations by exemption boards were about completed, we sent a second questionnaire to 2,500 of the students who, following the previous questionnaire, had been included in the first or second calls. This second questionnaire asked whether the student had actually appeared before an exemption board and whether he had been accepted or rejected. Owing to the shortness of time since the questionnaire was sent out, not all replies have been received; an analysis of the returns, however, supports our previous figures or, if anything, indicates that our previous estimates as to the number of medical students conscripted were too low. We hope to be able to give the final figures next week.

CARBON DIOXID AND THE REGULATION OF RESPIRATION

The nature of the mechanism which regulates respiration has come to be understood of late more intelligently than it possibly could have been so long as the chemical aspects of the process were not taken into account. The respiratory center is now recognized as being singularly responsive to seemingly slight variations in the composition of the blood that comes to it. A small increase in the discharge of acid catabolites, notably carbonic acid, into the circulation as the result of muscle work or other forms of cellular activity promptly starts the breathing apparatus functioning more vigorously. For some time it has been assumed, partly on the basis of supposedly valid scientific evidence, that the stimulation of respiration in this way is attributable to changes in the hydrogen ion concentration of the blood quite independent of how these are brought about. According, however, to the newest researches at the Johns Hopkins University by Hooker, Wilson and Connett,[1] carbonic acid, the most abundant and conspicuous of the waste products of metabolism, exerts a specific influence on the respiratory center independent of its effect on the hydrogen ion concentration or true acidity of the fluid perfusing it For example, blood with a comparatively high tension of carbon dioxid causes a greater stimulation of the respiratory center than does blood with a lower tension of carbon dioxid, but with the same acidity measured in terms of the hydrogen ion concentration The discovery of this special sensitiveness or reactivity of the respiratory mechanism to one of the products with the elimination of which it is so prominently concerned is not without great interest Precisely how the unique response is accomplished remains to be unraveled The carbon dioxid as such may stimulate the respiratory center, or the irritability of the center may be altered by variations in the concentration of carbon dioxid Perhaps, as the Baltimore investigators suggest, the hydrogen ion concentration of the environment of the respiratory center is its effective stimulus, but the irritability is influenced by other factors The normal irritability might accordingly be the resultant of a number of effects, including, as Hooker, Wilson and Connett imply, those produced by carbon dioxid, oxygen and various ions as well as changes in metabolic activity, the nature of which is not understood

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[1] Currie, J. N.: The Citric Acid Fermentation of Aspergillus Niger, Jour. Biol. Chem., 1917, **31**, 15.

[1] Hooker, D. R.; Wilson, D. W., and Connett, Helene: The Perfusion of the Mammalian Medulla: The Effect of Carbon Dioxide and Other Substances on the Respiratory and Cardio-Vascular Centers, Am. Jour. Physiol., 1917, **43**, 351.

Medical Mobilization and the War

Red Cross Commission to Serbia

The War Council of the American Red Cross announces the sending of a commission to Serbia to begin relief work to help the population in its struggle against privation and disease Two hundred thousand dollars has been appropriated to buy medical and other supplies for use among the refugees on the Macedonian front The commission is headed by Mr C A Sevverance, a lawyer of St Paul, and as deputy commissioners there will go Dr S Burrage, sanitarian, formerly of the Massachusetts Institute of Technology, Dr Frederick T Lloyd, Boston, Dr Eugene A Crockett, Boston, Mr Francis Jager of the University of Minnesota, and Mr Edwin D Haskell of Minneapolis Two other members of the commission are W A Stewart of New York, and L D Wishard of Pasadena, Calif

Total Personnel of Army Medical Department

The strength of the enlisted force connected with the Medical Department of the Army is stated to be over 60,000 at this time It is divided as follows Regular Army, 25,096, enlisted Reserve Corps, 15,002, sanitary troops of the National Guard now in the National Army, 20,000 Orders have been issued for the assignment of six noncommissioned officers and 120 privates, first class, or privates to each National Guard contonment for duty at the base hospitals connected therewith, including one noncommissioned officer and fifteen privates, first class, or privates previously sent Each cantonment will have available for duty, seven noncommissioned officers and 135 privates One hundred enlisted men will be assigned to each base hospital connected with the National Guard cantonments Orders directing these assignments are now being prepared

Department of Military Orthopedics

The Surgeon-General of the Army announces the organization of a new department for military orthopedics It is stated that from 30 to 40 per cent of the casualties of the present war require special orthopedic methods and that from 70 to 75 per cent of these patients when treated by these methods can be restored to military usefulness

Major Elliott G Brackett, M R C, U S Army, Boston, has been appointed director of military orthopedics, with headquarters at the Surgeon-General's Office Major David Silver, M R C, U S Army, Pittsburgh, has been appointed assistant director Major Joel E Goldthwait, M R C, Boston, has been appointed director of military orthopedics for the expeditionary forces, and Major Robert B Osgood, Boston, now serving with Base Hospital No 5, and Capt Nathaniel Allison, St Louis, now serving with Base Hospital No 21, will be transferred from their present positions to act as assistant directors abroad Major Osgood will be temporarily assigned to Col Robert Jones of the British forces To assist these directors an advisory orthopedic board has been created and is made up as follows Drs Robert W Lovett, Boston, Albert H Freiberg, Cincinnati, G Gwillym Davis, Philadelphia, F H Albee, New York, and John L Porter, Chicago

Payment of Medical Officers

Numerous physicians have written to The Journal asking when the pay of officers commissioned in the Medical Officers' Reserve Corps begins An officer in the Medical Reserve Corps not on active duty receives no pay Officers on the active list receive pay and allowances monthly on accounts certified by themselves according to prescribed forms The pay begins with the time that the officer reports for active duty Pay vouchers are made out monthly on form 336 W D, and it is customary to send them to the Quartermaster on the 20th of the same month covered by the vouchers The vouchers are made in duplicate, but only one voucher is signed Mileage vouchers are made on form 337 W D and submitted in duplicate, one copy being signed The original order of assignment to duty or certified copy with endorsements should accompany the mileage account. Officers are entitled to mileage from the place of appointment to their first station, the usual sum being 7 cents a mile, this covers all expenses as well as the actual railroad fare

Early Medical Care of Recruits for the National Army

The men of the National Army will be prepared along the most modern hygienic methods for active duty As soon as each recruit arrives at the cantonment, he will be required to take a bath and will then be given a new complete physical examination Each recruit will be vaccinated for typhoid, paratyphoid and smallpox Recommendations will then be made to the company commanders for special forms of exercise to remedy slight physical defects The early weeks will also be utilized for setting up drills and preliminary schooling of the soldiers so that the men will become fit for the regular training which follows

Division Surgeons Announced

The following members of the Medical Corps have been announced as division surgeons and ordered to report to the commanding officers at the various camps and contonments specified Lieut-Cols Charles E Marrow, Camp Lee, Petersburg, Va, Eastern Department, M A. W Shockley, Camp Devens, Ayer, Mass, Northeastern Department, Thomas L Rhoads, Camp Meade, Annapolis Junction, Md, Eastern Department, Charles R Reynolds, Camp Upton, Yaphank Long Island, N Y, Eastern Department, Jay R. Shook, Camp Dodge Des Moines, Iowa, Central Department, George M Ekwurzel, Camp Dix, Wrightstown, N J, Eastern Department, Conrad E Koerper, Camp Gordon, Atlanta, Ga, Southeastern Department, John H Allen, Camp Taylor, Louisville, Ky, Central Department, Wallace De Witt, Camp Sherman, Chillicothe, Ohio, Central Department, Robert M Thornburgh, Camp Pike, Little Rock, Ark, Southeastern Department, Paul S Halloran, Camp Travis, Fort Sam Houston, Texas, Southern Department, Kent Nelson, Camp Jackson, Columbia, S C, Southeastern Department, Peter C Field, Camp Lewis, American Lake, Wash, Western Department, Cosam J Bartlett, Camp Custer, Battle Creek, Mich, Central Department, and James M Phalen, Camp Grant, Rockford, Ill, Central Department Major Charles C. Billingslea, Camp Funston, was assigned to Fort Riley, Kan, Central Department, but has since died.

Red Cross Ambulance Companies in France

Forty-five ambulance companies organized by the American Red Cross have been mustered into the Army Medical Corps These companies were all organized by Red Cross chapters Each consists of 124 men, a captain, 40 lieutenants, 2 first-class sergeants, 11 sergeants, 6 corporals, 1 mechanic, 3 cooks and 96 privates Four ambulance companies are assigned to service with each Army division

Eleven of the companies are at Allentown, Pa, in training for service in France These companies are Pasadena Company, Capt. Charles D Lockwood, University of California Company, Capt Alvin Powell, Washington (D C.) Company, Capt Ryan Devereaux, Fordham University Company, Capt Joseph Donnelly, University of New York Company, Capt Chester F S Whitney, Columbia University Company, Capt William H Rockwell Battle Creek Company, Capt James T Case, University of Washington Company, Capt David C Hall Boston Company, Capt E A Cunningham, Portland (Me.) Company, Capt Ernest B Folsom, and the Columbia (S C.) Company Capt Marion H Wyman

The two Atlanta (Ga) companies under Capt Leo P Daly and Capt Walpole C Brewer, have been assigned to Fort McPherson The Greensboro (N C) Company, under Capt Charles S Lawrence is at Fort Oglethorpe. The Summit (N J) Company under Capt William H Lawrence, is in camp at Butler N J The San Antonio (Texas) Company under Capt Homer T Wilson, at the request of the governor of Texas is with the Texas National Guard on the border

The other companies are to be assigned with the National Army at the various cantonments There are the University of Chicago Company Elbert Clark, captain Cleveland Company Dr Harold O Ruh captain, Detroit Company, Charles Barton captain, Northwestern University Company Stephen V Balderston captain, Pittsfield Company Robert J Carpenter, captain, University of Oregon Company John E. Kuykendall captain, Grand Rapids Company Thomas D Gordon, captain Fredonia (Kan) Company Edgar C. Duncan captain Indianapolis Company Mason B Light captain, Portland (Ore) Company Ernest H Streit captain Flint (Mich) Company, Walter H Winchester, captain, Charleston (W Va) Company Timothy L. Barber captain, Kansas City (Mo) Company Ernest W Cavaness, captain, Rutland (Vt) Company William Stickney, captain, Detroit Company Griffith A Thomas captain, Salt Lake City Company Hugh B Sprague captain, Denver Company Thomas M Hopkins captain Greenville (S C) Company James E Daniel, captain Hudson County (N J) Company Frederick J Quigley, captain Houston (Texas) Company Claude C. Cody captain, Minneapolis Company Ralph T Knight captain, Vicksburg Company, E. F Howard captain, Fort Worth (Texas) Company Dr Will S Horn captain, Lock Haven (Pa) Company, George D Green captain, Michigan Company of Flint, Dr F A Roberts captain, Raleigh (N C) Company, Charles L Scott captain Topeka Company C H Lerrigo, captain, Memphis (Mich) Company, Walter R T Sharpe, captain, and the Omaha (Neb) Company, A. A. Linquist, captain

Pediatric Expeditionary Force

At the head of a group of specialists in infant welfare which has been sent to France by the American Red Cross is Dr William P Lucas, professor of pediatrics in the University of California

The total deaths in France in 1916 were about 1,100 000 Births numbered only 312,000 The net loss in population was 788 000 or nearly 2 per cent. of the whole In Paris where 48 917 babies were born in the year ending Aug 1 1914, only 26 179 were born in the second year of the war, ending Aug 1, 1916

With Dr Lucas in the unit, which was financed by Mrs William Lowell Putnam of Boston, are Dr J Morris Slemons of the Yale Medical School, Dr Julius Parker Sedgwick, physiologic chemist, professor at the University of Minnesota Dr John C. Baldwin Pittsburgh, Dr Clain F Gelston, Dr Lucas assistant at the University of California, Dr N O Pearce, Cloverton Minn and the following experts in sociology and child welfare work Mrs J Morris Slemons, Mrs William P Lucas, Miss Elizabeth Ashe and Miss Rosamond Gilder, daughter of the poet.

These specialists will make a general survey of the situation and study the work already being done, and will practice without compensation It is intended to carry on a general education campaign among French mothers in the interest of better prenatal hygiene and scientific feeding and care of the babies

Medical Supplies for Russia

In response to an urgent request from Dr Frank Billings head of the Red Cross Commission to Russia, the American Red Cross is sending a large quantity of medical and surgical supplies to meet the urgent needs of the Russian military hospitals This supplements an earlier consignment which was forwarded for immediate use when the commission sailed to investigate the Russian situation The commission carried with it $200,000 worth of such material, including among other supplies over 50 microscopes and 45,000 slides, 4 600 clinical thermometers, 288 operating knives, 23,000 lengths of catgut, 1,700 ice caps, 175,000 morphin sulphate tablets and 200,000 antiseptic tablets

In the new consignment, for which the War Council appropriated $160,000, there are 180,000 tablets of quinin sulphate, 1,000 pounds of chloroform, 10,000 tablets each of atropin and strychnin for hypodermic injection, 50 000 doses of antityphoid vaccine, also tetanus antitoxin and diphtheria, smallpox, cholera and plague vaccine, 10,000 pounds of soap, 25 dozen hot water bottles, 10,000 pounds of gauze dressings and pads, 10,000 bandages and rolls, 1,000 blankets and 6 dozen stethoscopes and various laboratory supplies

Among the other items in the shipment are these 5,000 c c. of digitalis 1 000 cocain tablets, twenty collapsible operating tables 14 400 needles 200 pounds of rubber tubing, 20,000 pounds of absorbent cotton, and 5 000 safety pins

Henry P Horn, formerly a vice president of the New York, New Haven and Hartford Railroad, a member of the commission is cooperating with the American Railroad Commission previously sent to Russia in securing the quickest possible handling of these and the other relief shipments which will follow as they are called for by Dr Billings He has worked out a plan for identifying Red Cross consignments so that Russian railway men will facilitate their movement, and in spite of the congestion of the railroads it is hoped that these supplies will be in the hands of surgeons and nurses in the Russian army hospitals in a short time

Physicians Recommended for Commission in the Medical Reserve Corps

During the week ending Aug 25 1917, 415 physicians were recommended for commission in the Medical Reserve Corps, the proportion being 10 majors, 72 captains and 333 lieutenants

Books for War Prisoners

The British have what is known as the British Prisoners of War Book Scheme which aims to provide British prisoners with books of all kinds According to the *Lancet* the demand for technical and scientific books is very great. They are hard to get as contributions, as their owners usually need them, and second hand books of sufficiently late date are almost unobtainable. The committee has been compelled to make large purchases of new books, and funds are asked. It is said that the donors will recognize that gifts for this purpose not only serve to save the prisoners from mental starvation, but increase their value as commercial and professional assets after the war Offers of books or gifts of money (the former with lists) should be sent to Mr A T Davies, C B, Prisoners of War Board of Education, Victoria and Albert Museum, South Kensington, S W 7, England

Cancellation of Leases for Reserve Officers

The Chicago Rotary Club is making a special effort to aid physicians who have been called to active duty in disposing of any leases which they may have and which would continue during their period of service. Some corporations from which physicians rent have refused to cancel leases In its announcement, the Rotary Club says

> It seems to the Chicago Rotary Club that when physicians are so much needed in the United States Army every effort should be made to relieve them of contracts rightfully binding in times of peace but which might better be waived in times of national peril
>
> We all know that the physician giving up an established practice to enlist makes perhaps the biggest sacrifice of us all because his business depends absolutely on personal contact The day he leaves his business ceases. But his lease goes on Yet our country is calling for more physicians and many patriotic doctors everywhere are trying to arrange their affairs to go
>
> It is possible to create a strong public opinion favoring the canceling of leases in such cases If advisable the matter can be carried for consideration to Congress But first the Physicians Lease Committee wants figures and facts. We are sending this letter to 20 000 physicians scattered all over the United States

Physicians who may be personally interested or who have knowledge of other physicians who have joined the Medical Reserve Corps and are having difficulty in securing the cancellation of leases, will render aid to this movement by addressing Mr R. R. Denny Chairman of Lease Committee, Chicago Rotary Club 359 East Ohio Street. But it is not leases alone, it is the fact that the mortgage on their homes is coming due this fall or next year, that is causing anxiety to some Medical Reserve Officers

Report of Lord Charnwood on Criticisms of the Medical Service of the British Expeditionary Forces in France

July 5, 1916, Lord Charnwood made a report to Sir Alfred Keogh, director-general of the British Medical Services, concerning certain criticisms made in the House of Lords on the arrangements of the medical service for the care of the wounded and sick of the expeditionary force in France At e request of the director-general, Lord Charnwood spent time from June 19 to 29, 1916, in France. He visited, spected and studied the organization and working of the whole hospital and medical service from casualty clearing stations to base and general hospitals and other institutions He was given the freest opportunity and aid in inquiring into every phase of the situation from persons of every rank and degree of authority, from wounded privates to officers of the various grades An effort was made particularly to question and get the point of view of those making definite criticisms of the service. In addition to the inquiry regarding the workings of the medical service proper, he investigated, in a number of instances, the sanitary arrangements and the efficiency of the sanitary service

Preliminary to giving the results of his investigation he describes the features of the system of dressing and clearing stations, ambulances, base, general and other hospitals, and the apportionment of the service rendered by each, most of which is familiar in a general way to our readers

The criticisms on which the investigation was undertaken were of two classes It had been alleged that through defects of organization or of energy the wounded and sick were not cared for as they should have been It was emphatically asserted that the provision for the wounded and sick was splendidly effective, but that it was conducted without due economy of personal services, and therefore resulted in the unnecessary withdrawal from England of men who could ill be spared The latter criticism, it was said, was more widespread, but that so far as it took a hostile form it was based on the same arguments To the criticism that the system of evacuating and caring for the wounded in the various stations and hospitals had been devised for the South African War and was not adaptable to present conditions, Lord Charnwood says that no one would be able to say that this was so without having gone over the ground and eliciting the experience of a number of officers engaged in the work. This Lord Charnwood did, and his conclusion is that the existing system provides admirably for present needs and is speedily adaptable to future needs It is a subject of a very peculiar kind, and he found the officers concerned in it experts with peculiar experience and resourcefulness in carrying it out An objection was made by one critic that the system of base hospitals should be much nearer the front, to which wounded men should be brought direct from the advanced dressing stations by motors over any available road without reference to the movements of reinforcements, munition or food trains This criticism was dictated, it is said, by the special interest of the critic (who was not a surgeon) in grave abdominal wounds, but as these wounds constitute only one in forty-two of wounds occurring, and as practice in regard to them had recently changed materially, the criticism had not sufficient basis and was barren of practical suggestion Lord Charnwood suggests that this and much similar criticism proceeds from a wrong standpoint

In regard to delay in removing the wounded from the field or the trenches into the hands of a competent surgeon, it is found that instead of delay the inquiry showed extreme rapidity, in some instances amounting to only five hours, which the report finds is more rapid than would be the case of a person wounded in an English village The impression among the surgeons was found to be that any such delay was not serious or avoidable

The criticism that the field ambulances were unnecessary and that the wounded should be moved directly from the advanced dressing stations to the casualty clearing hospitals without stopping at the intervening field ambulances, thus setting free "thirty doctors in each division for other and ore useful work," is regarded as "quite idle" The advanced essing stations are manned from the field ambulances, and case of the abolishment of the latter, the former would ve to be more heavily manned, the criticism is also based a misconception of the sort of work done by the field bulances Casualty clearing stations are sometimes cut off m the advanced dressing stations by barrage fire. The inion is expressed that the field ambulances must be kept t readiness and training for a difficult, exacting nt duty, and to whatever extent it may be possible to economize in the matter of particular field ambulances at particular times, any effort to supplant them by "scratch teams" as occasion requires would certainly be foolish The report goes on to say in regard to field ambulances in reserve

> The suggestion which I have just tried to answer is somewhat amended by saying *merely* that the field ambulances of divisions in reserve are superfluous. I think probably that at some past time in the war before either the demand for doctors had become urgent or the enormous organization which had to be built up had reached its present high degree of development, there were many doctors in the field ambulance suffering from insufficiency of work I can only say with certainty that this was not so when I visited France Divisions or brigades were not apt to be at rest for long The officer commanding the field ambulance which I happened to see attached to a unit in reserve explained to me the value which for the sake of the efficiency of his field ambulance he ascribed to this comparative rest. It was, he said, most important to him for the purpose of overhauling the equipment I was *informed* on the highest military authority that it was impossible even to regard any single division as presumably to *remain* in reserve for the next ten days This would not necessarily preclude the sort of economy in men to which I am about to refer, but it seems to show that every field ambulance should be *permanently* in such a state that it can be raised to a fully effective condition at a moment's notice The *medical* service with our forces in France is a single service in which the constant endeavor is made to place the available man at the spot where he is wanted

On the question as to whether or not unnecessary numbers of physicians are employed, it is said in the report

> I *observe* that field ambulances when in full employment are obviously and admittedly not overstaffed, and that the war has now plainly entered on a stage when no responsible critic from outside would dare suggest that a single field ambulance should be kept unready for action As to casualty clearing stations, I have never met with a suggestion that they are overstaffed It has, however, been suggested that the various units used for the purpose of conveyance are overstaffed with medical men In the case of hospital ships, hospital trains and hospital barges this has not, I think, been seriously urged

On the point that three medical officers to each motor ambulance convoy is excessive, it is admitted that they are in a position of constant waiting for emergencies which for many days together may not arise, but the total number of officers in this service does not amount to one for every division of the expeditionary force, and no one would wish to abandon this arrangement

The number of physicians for a base hospital with a given number of beds as laid down in the regulations before the war, based on the experience of former wars, is found not to be sufficient, as the admissions are liable to increase with an enormous rush and the number of serious and difficult cases to the total admissions rises enormously at such times During the rushes which had actually taken place, the work had been very severe indeed An effort to economize the services of surgeons was made by sending surgeons to the casualty clearing stations in the beginning of rushes and back to the base hospitals later at the height of the rush in those hospitals

The complaint that the time of physicians is wasted in doing clerical work is answered by saying that it is necessary to send case records when the men are evacuated or sent back to England, and the making of these records can be properly done only by medical men and is of great importance The need for economy with reference to surgeons is admitted, because the demand for them is likely to grow, but the remedy is not in the reorganization of the medical profession abroad, but by the organization of the civil profession at home with reference to the military need, especially in the industrial centers where the number of doctors was too few before the war But any attempt to increase the supply at home by curtailing the supply to the army would fail to meet the need just when the need is most felt

The criticism had been made that the administration was at fault in "applying good men to relatively unskilled work," and "in putting incapable men to important work in certain cases" While it is admitted that this might have occurred in some instances, it is believed that such a state of affairs would not continue for long, and no complaint of this sort was heard by Lord Charnwood in France As applied to the casualty clearing stations, which were mentioned in this connection, this work is so strenuous as to require the service of younger men, but each station had two skilled consultants under whom operations were performed by the younger surgeons

We quote *in* full Paragraphs 32 and 33 of the *report* because of their immediate interest

> 32 *Important Work and Incapable Men*—It may fairly be presumed that in the early days of this huge organization formed in deadly haste, many things have had to be done by men of less capacity when somewhere in the neighborhood there were men of greater capacity *This* of course is not a ground of complaint against the administration It

is wholly denied that important work has ever, even in the earliest stages been allowed to be undertaken by men who did not possess some guarantee of reasonable competence to perform it I got the impression that the administration had been especially apprehensive of the risk that important operations should be lightly and hastily undertaken by men not fully qualified both to perform them and to judge of their necessity Indeed I strongly suspect that a good deal of grumbling which at one time seems to have made itself heard among the medical profession arose from the fact of this bias on the part of the administration To almost all laymen capable of judging a leaning in this direction will seem wise and beneficent It has doubtless saved many arms and legs As things are, there can certainly be no ground whatever for the suggestion that an operation is liable to be performed by a man not selected for such work on sufficient grounds Such doubt as has been expressed in this country as to the qualifications of the staff by whom important operations are performed relates not to the base hospitals but to the casualty clearing stations Now every single casualty clearing station has two surgeons surgical specialists who either possess the qualifications of *fellowship* (a high qualification) of the College of Surgeons of one of the three kingdoms or (in exceptional cases) have been selected upon the advice of consultants of the first rank upon proof given during the war of their high capacity And the care taken in selecting these men is not limited to an initial inspection of their previous record The whole system is supervised in a manner to which I will refer later In regard to the casualty clearing stations it is to be noted that the field of choice is necessarily restricted to young men capable of bearing a heavy strain of work The arrangements for operation in the casualty clearing stations are such that the younger surgeons do their work with the advice and help of the two specialists constantly at hand In regard to the casualty clearing stations one remark of the chief consultant surgeon is perhaps more reassuring than any detail that can be given as to their careful organization fit though this is to compare with that of most hospitals at home—this statement to me of the care taken in selecting men and in effecting constant improvement concludes I hope I shall never think the casualty clearing stations perfect.

33 *Subordination of Skilled Civilians to R A M C*—It has occasionally been mentioned to me as a ground for complaint or at least surprise that able men drawn from civil practice have had to work under officers who had previously served in the R A M C, but who were professionally their inferiors The number of the original R A M C are very small in comparison to the whole number of doctors now in the service—not amounting I think to 1 to 10 With the exception of a few who have gained special distinction as surgeons (and some of the men whose distinction in this respect has been most widely recognized during the war are old R A M C men) this small number is almost entirely absorbed in administrative duties The commandant of a field ambulance a casualty clearing station or a base hospital though not always is one of these men and the higher positions of command are entirely filled by them Now surgeons and physicians often of higher skill as surgeons and physicians are subordinate to such officers in the sense in which the surgeons and physicians of the London Hospital or King's College Hospital are subordinate to Lord Knutsford or Lord Hamleden though no doubt with this difference that the administrative heads of a military hospital in war are more constantly seen and felt than those of a civil hospital in peace time The administrative duties of these officers are difficult duties for which they have been especially trained in the case of the younger men by a careful course of preparation in the case of the elder by experience in war and they are duties for which an ordinary civil surgeon or physician however capable is little better prepared than many laymen might be No one could read the report of the commandant of a field ambulance after a severe engagement without seeing that his task demanded highly trained faculties of organization and command of a sort which the experience of a civil practitioner does not call forth at all This is equally true of the work of the director of medical services with an army and of his staff and it is true in a different way and probably sometimes in a less degree of the officers in command of all units of the army medical organization It would be extremely disparaging to the medical officers drawn from civil practice to suppose that they did not as a rule recognize this fully and gladly and as a matter of fact I have been struck by the testimony which came to me in various ways and from different quarters as to the excellent spirit with which this large number of civilian practitioners have fallen into line in this great organization But I should like to say a word as to the manner in which the old members of the R A M C. discharge the kind of duties which have necessarily fallen chiefly to them It would be merely impertinent of me to praise those of the superior officers whom it has been my great pleasure to meet but I may be allowed to say that the energy resourcefulness and unfailing cheerfulness with which young officers of the R. A M C may be seen filling most difficult and arduous posts in advanced dressing stations field ambulances and casualty clearing stations entitle their services to a very high place in the regard and affection of their country

Contrary to the criticism that there was not a proper interest in the after-results of injuries it was said that the hospitals at Bolougne and Etaples were alive with interest' in such subjects by men of high reputation in the various subjects Dentists and oculists are now provided for The equipment of casualty clearing stations and field ambulances was found in accordance with the report of Sir Frederick Treves, to be complete and there was no complaint on this account on the part of the surgeons on account of equipment and the readiness with which additional equipment was supplied

With regard to the eminent consultants from civil practice brought to France to exercise a certain power of inspection and supervision over staff officers more immediately concerned with the treatment of patients and to give advice to the administration when required, the report, while approving the work of these eminent men, is not in favor of giving these consultants direct executive control, such as is exercised by administrative chiefs or issuing authoritative instructions or pronouncements on the advice of these consultants generally or the majority of them on controversial questions of treatment

The right scientific temper is found to prevail among the medical forces a proper degree of discipline exists, and red tape is at a minimum with reference to the matter of the suppression of individual initiative Special stress is laid on the statement that the impression should not be gained from the report that there is prevalent a hostile attitude toward the work of the army medical authorities There had been some grumbling and some continued criticism on the part of individuals actuated by misguided zeal or in a few rare instances by sheer malignity It was proper, therefore, that the public should be properly enlightened with reference to the true character of the criticism, involving, as it did, personal attacks on several officers, which were ill judged and very cruel It is said that all criticism "will be astray which does not recognize in the service splendid achievement and the achievement of a splendid spirit."

Impressions of an Italian Medical Prisoner of War

The *Riforma Medica* publishes an interview with Dr M Mauro who has just been repatriated after two years of imprisonment in Austria, having been captured early in the war He said The thing that impressed me most of all was that the Austrian operating stations and ambulances are so far back from the firing line None were nearer than 2 or 3 kilometers while the Italian posts are within a few hundred meters This explains the small number of Austrian medical officers that the Italians have captured There is a great scarcity of physicians in the Austrian armies, even though the age limit has been raised to 55 and lowered to a very youthful age Owing to this scarcity, the military authorities guard their medical officers from capture with special care, thinking that the welfare of the wounded in the long run is best served by the long transportation back to the distant field stations " On account of the scarcity of medical officers even old dentists serve as physicians Practically every man of the military age is serving with the army, no physical disability being recognized, as some place is found for every one to serve in some way The only selection is for the men sent to the firing line I have seen men in service with enormous hernias, with dilatation of the stomach, and especially with manifest tuberculosis I recall one Austrian officer with tuberculosis of the larynx and tubercle bacilli in his sputum who yet was sent to the front, and one sentinel who had committed suicide and cavities were found in both lungs Instead of leave of absence for convalescence or rest, the men are given a change of occupation, being sent to serve in some prisoners' camp or administrative office

The conditions at our first prison camp, at Lubiana, were deplorable The food was scant and poor and the Italian prisoners in our charge suffered in health At that time the Red Cross had not organized its marvellous services, and the families of prisoners were able only with the greatest difficulty to send them any aid A jail served as the hospital, but when we were transferred to Mauthausen, that wooden city near the Danube, we found hospital barracks equipped for 1,200 surgical beds and 2 000 medical and two isolation hospitals, with a special hospital for the troops guarding the prison camp The first year the medical service was attended to by seven Italian and five Austrian physicians but the second year there were twenty-five Italian physicians The beds were rarely empty, prisoners being sent here for treatment from other camps, and they comprised nearly every nationality The hospitals were well equipped and the arrangements for sterilization and disinfection were excellent, but there was a deplorable lack of food, of drugs and of dressings We physicians could point out the prisoners we thought should be given the preference for exchange or respite from being sent out to work, but our suggestions were seldom heeded It happened several times that the men we proposed for exchange but who had been rejected by the control board, died within a few days from their tuberculosis or other affection." Mauro pays tribute to the beautiful example of fraternity in the humanitarian service presented by the Austrian physicians in the camp, the chief surgeon in particular He also pays tribute to the Italian attendants in the hospitals who without any previous experience became skilful and displayed such devotion that their service compares favorably with the largest hospitals anywhere. Mauro tended a total of 8,000 sick or wounded, and performed 800 operations He says further, "There were many cases of severe malaria in prisoners from Albania and a few cases of typhus and cerebrospinal meningitis in the camp, but they never started epidemics Many cases of rapidly fatal tuberculosis developed at both prison camps fostered by the exertions, the cold and the lack of food None of the Italian physicians had any serious illness, and there was very little sickness among the Italian prisoners, testifying to their solid fiber After the Red Cross had organized its service through the mediation of Switzerland, supplies of food and money arrived to supplement the scant ration of bean or carrot soup supplied by the Austrians, and thus the danger of inanition in the hospitals was warded off The Naples branch of the Red Cross sent to Mauthausen not only food and comforts but also drugs and dressing materials in amounts enough for several months, and the Genoa branch sent money The Austrians furnished for the entire 1 200 beds of the surgical department only 10 liters of fresh milk a day A so-called milk powder was supplied but none of the sick could tolerate it The broth was usually made with vegetables, a small ration of meat was extremely rarely allowed The donations of the Red Cross made it possible to purchase additional supplies from Switzerland and from Italy But it was exasperating for us physicians to be treated as prisoners and denied the slightest liberty A change for the better in the conditions of the prison camp seemed to dawn with the death of the old emperor, the rations were less scanty and the air of the camp less depressing"

Orders to Officers of the Medical Corps

Lieut Col Carl R. Darnall, M C, to duty with Surgeon General of Army

Capt Harry S Purnell, M C, to Fort McHenry, Md, and assume command of General Hospital No 2, to be established

First Lieut. Henry F Lincoln, M C, to duty as provisional regimental surgeon of 1st Regiment of Heavy Field Artillery to be organized in Maine

Col. Weston P Chamberlain, M C, to Washington for duty

Par 50, S O 187, Aug 13, War Dept, announces the promotions in the Medical Corps To be colonels from May 15, 1917, from and including Henry D Snyder to and including Clarence J Manly To be lieutenant colonels from May 15, 1917, from David Baker to Fred W Palmer, inclusive To be majors from May 15, 1917, from May W Bryan to Roy C Heflebower, inclusive

First Lieut Olof I Sohlberg, M C, to Ambulance Co No 1, Minnesota, St Paul, for duty

Col James D Glennan, M C, from duty at the U S Soldiers' Home and report in person to Surgeon General of the Army for duty in his office.

Major A J Wilson, M C, to duty at Fort Thomas, Ky

Orders to Officers of the Sanitary Corps

First Lieut Frederick M Schaefer, San Corps, to duty at medical supply depot, Philadelphia

First Lieut J M Corson, San Corps, to Camp Custer, Battle Creek, Mich, as supply officer of division and property officer of base hospital at that camp

First Lieut R. A Lagrinder to Camp Lee Petersburg, Va, as supply officer of division and property officer of base hospital at that camp

First Lieut H J Fiestel report to commanding general port of embarkation, Pier 45, for duty

Capt Gilbert J Hurty, San Corps, to duty, Atlanta, Ga

First Lieut Samuel Siegel, San Corps, to duty Army Field Medical Supply Depot, Washington

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Orders to Contract Surgeons

Contract Surg E A *Albers report for* examination of troops of national guard at Kansas City for tuberculosis

Contract Surg F R Burke to Boston for duty as a member of board of tuberculosis examiners

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Orders to Officers of the Medical Reserve Corps

ALABAMA

To Camp Cody Deming, N M, Lieut Llewellyn H Ledbetter, Good Water

To Camp McClellan, Anniston, Ala, Capt J W Hooper, Roanoka Lieuts T M Barnett Dothan, W M Blair, Gantt, W W Burns Selma, R C. Evans, Sheffield

To Fort Oglethorpe for a course of instruction, Lieuts Modie E Cunningham, William C Dabney, Edgar W Daly, Birmingham, J Glenn Gilchrist, Brantley, Daniel B Faust, Clayton, George W Kiehnhoff, Daphne, Gilmer H Moore, Opelika, Clanton R Athey, Ramer, French H Craddock, Sylacauga

ARIZONA

To Hachita, N M, Major George P Stallman, Douglas.

ARKANSAS

To Camp Bowie, Fort Worth, Tex, Lieuts. W K Smith, Hot Springs, Robert E B Bledsoe, E W Prothro, Little Rock

To Fort Oglethorpe for a course of instruction, Lieuts William E McLain, Argenta, Dewell Gann, Jr, Benton, David W Goldstein, Ft Smith, Luther M Lile, Jonesboro, Guy A McCormack, Little Rock, Arch S Chapman, Mammoth Spring, Edward R. Cotham, Monticello, John B Wells, Scott, James F Poe, Shirley

To Fort Riley for a course of instruction, Lieut John W Elder, Alicia

To Kingsville, Texas, Major John M *Hewitt, Fort Logan H* Roots

CALIFORNIA

To Camp Fremont, Palo Alto, Cal, Capts. R Cadwallader, W B Deas, San Francisco, Lieuts H S Keyes, Los Angeles, E C Houston, San Francisco

To Camp John H Beacom, Calexico, Cal, for duty, Capt. Alexander Patterson, San Francisco

To Camp Kearney Linda Vista, Cal, Lieuts W P Milliken, Oakland, H J Willey, Porterville, J M Moss, T E Tillman, San Francisco

To Camp Lewis, American Lake, Wash, for duty with Provisional Ambulance Co B, Lieut Raymond Babcock, Willits

To Chicago for duty, Lieut. Jay M Read, San Francisco

To Fort Baker, Calif, for duty, Lieut Louis Jean Ernest Gouguet, Chicago

To Fort Ontario N Y, with Hospital Unit N, Lieut Edwards H William Los Angeles

To Presidio of S F with Provisional Ambulance Co C for duty, Lieuts George M Hubbell, Los Gatos, Pleasant A Taylor, San Francisco with Provisional Sanitary Train, Capts Gustav J Bergener, San *Francisco*, Sidney E D Pinninger Tracy Lieuts *John* L. Beard, Martinez Luther M Leisenring, Placerville Glover B Wilcox, San Francisco Lafayette J Wilson, Sebastopol

To report by telegraph to the commanding general Western Dept, for duty, Lieut Edward H Diehl, Artesia

COLORADO

To Fort Benjamin Harrison for a course of instruction, Lieut *Earl* W Kemble, Golden

To Fort Riley for a course of instruction, Capt John S Fox, Silverton

To Presidio of S F, with Provisional Sanitary Train, Lieut. Frank N Stiles, Grand Junction

CONNECTICUT

To Fort Benjamin Harrison for a course of instruction, Lieut Philip W Place, New Haven

To Fort Riley for a course of instruction, Capt Arthur B Landry, Hartford

To Rockford, Ill, Camp Grant for duty, Lieut Harold S Arnold, New Haven

DELAWARE

To Fort Oglethorpe for a course of instruction, Lieuts Joseph Bringhurst, Harrington, Joseph M Barsky, Wilmington

DISTRICT OF COLUMBIA

To Fort Benjamin Harrison for a course of instruction, Lieut Timothy J Sullivan, Washington

To Fort Des Moines, Iowa, for duty, Lieut Arthur L Curtis, Washington

To Fort Oglethorpe for duty Lieuts Arthur G Compton, for a course of instruction, William H Littlepage, John B Piggott Washington

To Washington, Capt Edwin R Hodge, Washington

FLORIDA

To Camp Wheeler Macon, Ga, Lieuts H F Horne, A C Koon, Jacksonville, A M Ames, Pensacola

To Fort Monroe Va for duty, Lieut William G McKay, Jacksonville

To Fort Oglethorpe for a course of instruction, Capts Edward G Birge Herbert O Black, Jacksonville Lieuts Heber P Newman, Bartow George W Dupree, Blue Creek, Jonathan S Coker, Gardner Albert E Acker and Gaston Day, Jacksonville, Harry C Galey, Key West John M Whitfield, Malone Wallace P Crigler, Ocala Daniel M Adams, Panama City, John T Bradshaw, San Antonio, Bennett A Burks Titusville, George S McClellan, Wellborn, Kenneth McC Davis, Westbay

To Santa Fe, N M, Major Frank E Artaud, Key West.

GEORGIA

To Camp Hancock Augusta Capt Montague L Boyd Atlanta

To Camp Shelby Hattiesburg, Miss, Lieut J H Johnson, Columbus

To Fort Benjamin Harrison for course of instruction, Lieut. Henry Grady Banister, Gainsville

To Fort Des Moines, Iowa, for duty, Lieut John H Williams, Pelham

To Fort Oglethorpe for a course of instruction, Capt Melton D Cornell Macon Lieuts Harold I Reynolds, Athens James T Calloway and Welburn A Upchurch Atlanta John W Oden, Blackshear, John H Terrell Jr Canon Ira C H Carst Carrollton Jesse M Anderson Columbus James W Anderson, Gray Charles C Middleton Savannah Lucius P Farmer Spread Rufus L Graham Stillmore Thomas F Blackburn, Swainsboro Horace E Crow Talmo

To Syracuse N Y with infantry brigade to complete the medical personnel Lieut William C Herrington, Nunez.

IDAHO

To Fort D A Russell Wyo for duty Capt Edward E Maxey, Boise

To Fort Riley for a course of instruction, Lieut Burrell O Railston Rathdrum

ILLINOIS

To Chicago Lieut Alford F Budde North Chicago For duty in the office of the department surgeon, as head of tuberculosis examining board Lieut Walter W Hamburger, Chicago

To Fort Benjamin Harrison for instruction, Capt Otis Hackett Johnson Quincy

To Fort Des Moines for duty, Lieut George L. Samuels Alton

To Fort Oglethorpe Lieuts Ira W Ellis, Murphysboro and James Emmons Pinkstaff

To Fort Riley for instruction Lieuts Willard P Earngey Argyle Charles W Monroe Arthur Rollen W Harrod, Avon Harry I Stevens Ashley Frank O Kunz Beardstown Carl F Lewis Brussels Louis D Hughes Carbondale Andrew J Aird, Carterville Capt Francis M Edwards Centralia Capts Russsell E Adkins Walter H Allport William B McCauley Lieuts Oliver E Alyea W F Bartlett, Harry B Bernhardt Jesse F Boone Lewis L. Brodsky Edward A Brucker Alexander W Burke Charles W Colebaugh John W Cornell, Vernon M Jared John M Krasa Lewis H Lippemann Albert Martin William C Meachan Herbert V Mellinger, Earl B Miller, Ellis Van Order Moulton Edward T Robinson Lambert W Rosenbaum Jerome F Straus John F West and Eugene P Wright, Chicago August C. Armbruster Collinsville John G Dwyer Cullom Knud Hartnack Downers Grove Joseph C Khczowski Dunning Walter W Boyne East St. Louis Norton W Bowman Flora Hugh Q Allison Crayville Edward W Cummins Charles M Fuson Douglas A Lehman Robert B Nyberg Harrisburg Lester W Baker Herrin Capt Robert R. B Jacks Highwood Lieuts. Harlan W Brink, Hopedale Reuben A Moffett Ladd Capt William E Chapman Leland Lieuts Gustave A Florethr Mount Olive Charles K. Barclay New Lenox David A Morgan Nilwood Albert L. Alderson Pana Clifford C Wehn Penfield John L. Aleshire Plainville Ralph McReynolds Quincy Arthur D Jackson River Forest Daniel E Egan, St. Charles John B Hazel Jr Staunton George J Powers Streator Archie S Horn and Roy H Wilson Tampico Paul R Allyn and Walter H Allyn, Waverly and Frank W Blatchford Winnetka

To Fort Sheridan Lieut Charles D Eldred Chicago

To Rockford to Camp Grant for duty, Lieut Edwin F Hirsch, Chicago

To Syracuse N Y with infantry brigade to complete the medical personnel Lieuts. Bernard P Conway, Chicago and Samuel R. Magill Loami

INDIANA

To Fort Benjamin Harrison for a course of instruction, Lieuts Henly Harvey Boswell Miles Frederick Daubenheyer Butlerville Carl L. Souders Columbia City Wilcox G Thorne Columbus O A Tucker, Daleville Samuel R. Laubscher Evansville Harry C Odell Farmersburg Walgo Clay Farnham and Elmer C Singer Fort Wayne Brant E. Lemmon Greencastle John Clay Glackman Hatfield Ray H Thomas and Joseph F Ward Indianapolis John C Webster Lafayette James L. Walker La Fontaine Noah Webster Clark, Roseville Charles E. Stone Shoals Lyman Ambrose Burnside Terre Haute Malcolm Brown Fyfe, Wheatfield.

To Fort Des Moines Iowa for duty, Lieut. Joseph H Ward Indianapolis

To Fort Oglethorpe for a course of instruction Lieuts. Wallace Curtis Dyer Evansville James A. Sims Pinevillage

To Fort Riley for a course of instruction Capt George W Newell Peru Lieuts Smith A Quimby Indianapolis Lawrence J Quillin, Warsaw

IOWA

To Fort Des Moines for duty laboratory work at Camp Dodge Lieut D J Glomset Des Moines

To Fort Benjamin Harrison for instruction Lieut. Aaron Clyde Conaway Marshalltown.

To Fort Oglethorpe for a course of instruction Capt Charles L. Marston Macon City Lieut. Samuel J Lewis, Columbus City

To Fort Riley for a course of instruction Capts George C Skinner Cedar Rapids LeRoy A Wescott Cherokee Edwin A Merritt, Council Bluffs James W Osborn Des Moines Clarence Van Eppe, Iowa City Arthur A. Pace Toledo Fordyce H McCabe Wellman Lieuts Paul F Guernsey Bloomfield Roy C Alt Cedar Rapids Leo C Kuhn Chariton Clifford L. Bartlett Clinton Harry L Bridgmann Columbia Frederick H Lamb Davenport Alfred S Price Des Moines William S Binford Dixon John R. Christensen, Eagle Grove Walter E. Anthony, Ottumwa Garner F Parker, Pocahontas William H Clary Prescott J Willard Caldwell, Steamboat Rock Otis P Morganthaler, Templeton Sylvanus W Corbin, *Willerton*

KANSAS

To Fort Oglethorpe for a course of instruction Lieuts. Eugene J Broderick Dodge City Felix Cohen, Kansas City

To Fort Riley for instruction, Capt James Clyde Butler, Stafford Lieuts Ralph C Henderson, Erie Tartlon A Hood, Garnett, Walter N Mundell Hutchison, Shirley F Boyce, Iuka, James B Donnell, Kinsley Arthur Knisely, Liberal Hugh B Hawthorne Palmer Clyde L. Appleby, Peabody Charles S Adams St John Charles M Fitzpatrick Salina James A Hampton Webb, Strafford George K. Purves, Wichita

To Syracuse N Y, with infantry brigade to complete the medical personnel, Lieut Ralph H Hertzler, Newton

KENTUCKY

To Camp Fremont Palo Alto Calif, Lieut. R M Jones Louisville

To Fort Benjamin Harrison for a course of instruction Lieut Albert Earle Holmes Louisville

To Fort Oglethorpe for a course of instruction, Capts. Orrin LeR Smith Lexington Richard Woods Ogilvie, Princeton Charles M Cower, Trenton Lieuts Albert C Bond and Smithfield Keffer, Ashland Ernest E Archer Auxier Frank I Buckner, Campbellsville John P Wheeler, Carrollton Stanley E. Straube, Edgoten E C Brandon Elizabethtown Henry T Alexander, Fulton William A. Weldon Hardyville Lon B Moremen, Irvington Logan Felts Lewisburg Julian T McClymonds, Lexington Charles W Stroup Ludlow Marshall A Moore, McVeigh Adam G Osborne Myra William W Anderson, Newport William E Ray, Staub

To Fort Riley for instruction, Lieut Walter L Coolidge, Louisville

To Fort Thomas Lieut J B Robards Harrodsburg

To report to Major B Dewey, San Corps, Medical Supply Department, New York City Lieut F L. Eiseman, Louisville

LOUISIANA

To Camp Beauregard Alexandria, La, Lieuts T B Cracroft, Kelly, R P Evans Newellton A A Landry, Plaquemine A. T Palmer, Yelgar

To Fort Oglethorpe for a course of instruction, Capt. Dalton H Trepagnier Burrwood Daniel O Willis Leesville Nicholas K. Edrington and Solon R. Humphries New Orleans James C Sartor, Rayville

To Fort Sam Houston Camp Kelly, South San Antonio duty with Thirty Third Aero Squadron, Lieut O B Kiel New Orleans

To Syracuse N Y with infantry brigade to complete the medical personnel Lieuts Marvin Cappel Alexandria Jack T Cappel, New Orleans Claude A. Martin, Welsh.

MAINE

To Allentown Pa for duty, Lieut. Frank H Jordan South Portland

To Fort Benjamin Harrison for instruction Capt. Lester Adams, Bangor Lieuts Leon S Lippincott Brunswick James McFayden Milo

To Fort Riley for instruction, Capt. Arthur U Desjardins Waterville Lieut Frank W Merritt Jay

MARYLAND

To Camp Doniphan Fort Sill, Okla, Lieut. P R. Brown Baltimore.

To Camp Sheridan Montgomery Ala, Lieut Eugene H Hayward Baltimore

To Camp Wadsworth Spartanburg, S C, Capt. Thomas B Conrad Chevy Chase.

To Fort Benjamin Harrison for instruction, Lieut Thomas B Johnson Frederick.

To Fort Oglethorpe for a course of instruction, Major George A Stewart Lieuts Everett LeC Cook, Charles M Harmon, Charles L. Joslin Baltimore Frank M Wilson Cumberland Philip J Bean, Jarboesville Edward C J Miller Kitzmiller, Ira M Zimmerman Williamsport

To Fort Riley for instruction, Lieut Walter C. Burket Baltimore.

MASSACHUSETTS

To Cambridge to Harvard for duty, Lieut. Raymond P Parker Winthrop

To Fort Benjamin Harrison for instruction Capt. Willard Stephen Parker Lieuts. Henry Manning Emmons and John Hammond Anderson, Boston Joseph Simpson Essex Wilfrid T LaFortune Fitchburg Charles Francis Canedy Greenfield Oscar L Spencer Lynn John J Kelly Marlboro Edward S Ward North Attleboro Harry A Schneider Pittsfield Charles Henry Davis S Hamilton and John F Streeter Springfield Andres J McGraw Taunton Roland S Newton Westboro, and Victor Anthony Aimone Winchester

MEXICO

To Camp Cody Deming N M Lieut. Charles C. Cooke, Vera Cruz.

MICHIGAN

To Army Medical School Washington D C, for instruction, Lieut Henry Cook Flint.

To Fort Benjamin Harrison for instruction Capts. Hugh McDowell Beebe Ann Arbor James H McCall and Robert Albert Carl Wollenberg Detroit Edwin James Evans Greeland Matthew Kollig Saginaw Lieuts Esli T Morden, Adrian Howard Morton Holcombe, Ann Arbor Ralph Ernest Dawson Blanchard Sheldon B Young Caseville Robert E. Hayes Channing Allan M Wilkinson, Charlevoix Wilber Aaron Griffith Coldwater Clarence Herbert Belknap Edmund William Bolio Ralph Hugh Bookmyer, Edward Kanter Curenus B Lockwood Robert M Martin, Robert C. Moehlig *Harrold L. Morris* Grover C Pemberthy William L. Sherman and Harold Wilson Detroit Raymond M Schulte, Dollar Bay Victor Henry de Somoskeoy Flint Wells C. Reid Grand Blanc Burt Francis Green Hillsdale Ray R. McCrum Lansing Arthur J Warren Mount Clemens Ira Arthur Abrahamson Negounee George P Sackrider Owosso Lester F Kennedy Pontiac

Fred P Nevius, Posen, John Lindsay Conover, Rapid River, Walter Alexander DeFoe, Saginaw, and Joseph L Murphy, Taunton

To Fort Oglethorpe, Lieut. Warren E Anderson, Jackson

To Fort Snelling, Minn, for duty with Forty First Infantry as surgeon, Capt Warren P Morill, Benton Harbor

To Report by Telegraph to Commanding General, Southern Department for duty, Capt. Frank S Love, West Branch

To Washington, Lieut. Warren L Babcock, Detroit

The resignation of Lieut William R Manlove, Grand Rapids, is accepted

MINNESOTA

To Deming N M, Lieut Gilbert J Thomas, Minneapolis

To Fort Riley for instruction, Capt Edward A Meyerding St Paul, Lieuts Ronald L Laney, Brown Valley, Roderick F McHugh, Collraine, Ralph B Bettman, Rochester, Frank A Plum, Rochester, and Harry E Canfield, Willmar

To Fort Sheridan for duty, Lieut George D Rice, St Cloud

MISSISSIPPI

To Camp Cody Deming, N M, Lieut Little B Neal, Jackson

To Camp Shelby, Hattiesburg, Miss Capt H L Noel, Lexington, Lieuts A T Graham, Eastman, and H P Boswell, New Albany

To Fort Benjamin Harrison for instruction, Lieut Paul Zollicaffer Browne, Jackson

To Fort Des Moines for duty, Lieut. James A Owen, Natchez

To Fort Oglethorpe for a course of instruction, Capt Walter R McKinley, Columbus, John T Barbee, Ripley, Lieuts Judge James, Ackermore, James Q Fountain, Bay St Louis, Rufus E Priest, Buena Vista, Thomas J Bush, Clarksdale, William J Lusk, Cliftonville George H Spivey, Hollandale, William G Byrd Isola, William S Cranford, John F Scarborough and Charles P Clark, Laurel, Rufus E Applewhite, Magnolia, Robert M Leigh and Osee Fulton Kean, Meridian Grover C Denson, Oak Vale, Emile Q Withers, Jr, Okalona, William H Straban, Polar Creek Solomon R Boykin, Puckett, Shelby C Spencer, Shannon, and George C Jones, Yazoo City

MISSOURI

To Camp Kearney Linda Vista, Calif, Capt R Smart, Crane

To Camp Shelby Hattiesburg, Miss, Lieut F M Cook St Louis

To Camp Sheridan, Montgomery, Ala, Capt. Ernest G Mark, Kansas City

To Camp Wheeler, Macon, Ga, Lieut W S Armour, Kansas City

To Fort Oglethorpe Lieuts. Albert L Evans, Bonne Terre, and Devilla D Edmons, Kansas City

To Fort Riley for instruction, Capts Edward H Clark, Kansas City Walton F Fry and Waldemar Ude, St Louis, Clive S McGinnis, Sedalia, Lieuts Fred C Albright, Bronaugh Paul R Williams Cape Girardeau Buell F Menefee, Jonesburg, William F Culbertson, Zachariah G Jones, Ward H Leonard and Harvey E McCarthy, Kansas City, Hilen K Wallace, St Joseph, Joseph T Axline, Fred LeG Gibbs, Edward E Heiple, Martin F Kouri and Arthur J Zimlick, St Louis, and Samuel D Avery, Troy

To Presidio of San Francisco for duty with Provisional Sanitary Train, Capt. Frank D Dickson, Kansas City

MONTANA

To Fort Benjamin Harrison for instruction, Lieut Edwin James Greer, Great Falls

To Fort Riley for instruction, Lieut Lindsay W Baskett, Big Timber

NEBRASKA

To Fort Benjamin Harrison Lieut James M Woodard, Aurora

To Fort Riley for instruction, Capts Charles H Campbell Columbus, John Buis, Pender, Frank S Nicholson, St Paul Lieuts Edgar Cline, Auburn, Charles E Legg, Champion, William O Akers, Florence, Lothar F Egen and Charles F Shook, Omaha, William H Crawford, Rushville, and Charles P Brenn, Western

NEW HAMPSHIRE

To Fort Benjamin Harrison, Lieuts Leopold T Togus Hookset, Winfred Oren Brown, Littleton, and John B Warden, Whitefield

Honorably discharged, Lieut William M Robb, Keene

NEW JERSEY

To Allentown, Pa, for duty, Capt George H Lathrope, Morristown

To Camp Hancock, Augusta, Ga, Lieut Livingstone L Lewis Hoboken

To Camp Wadsworth, Spartanburg, S C, Lieut George W Vannatta, East Orange

To Fort Benjamin Harrison for instruction, Lieuts Max E Stern, Jersey City, Benjamin D Ruben, Trenton

To Fort McPherson Lieut William L Vroom, Ridgewood

To Fort Oglethorpe for a course of instruction, Capt George C Albee, South Orange Lieuts David Berner and Samuel L Salasin, Atlantic City, John W Boggs, Atlantic Highlands Millard F Sewall, Bridgeton Philip DuB Bunting, Elizabeth Harvey S Brown Freehold Frank Bortone, Jersey City, Ralph R. Charlesworth, Millville, Maurice S Avidan, Robert Buermann, Ernest Gennell, James E McCormick Raymond J Mullin and Frank W Pinneo, Newark, Anthony Gruessner, New Brunswick, Charles S Smith, Orange, William A Brady, Union Hill William T Callery, Weehawken

To Fort Ontario, N Y, in connection with Hospital Unit N, Capt Arthur F Thompson, East Orange, Lieut Maxwell G Keeler, Weehawken

To Fort Riley for instruction, Lieuts John T Rose Asbury Park Charles S Brady, Union Hill

To Washington, Walter Reed Hospital, Lieut. Charles N Harper, Trenton

NEW MEXICO

To Fort Benjamin Harrison for a course of instruction, Lieut James A Van Horne, Roswell

To Fort Riley for a course of instruction, Lieut. John W Tinder, Roswell

NEW YORK

To Army Medical School, Washington, D C, for instruction, Lieuts Burke C Hamilton, Goshen, Ralph E Costanzo, New York

To Camp Beauregard, Alexandria, La., Lieut. D O Sherman, Brooklyn

To Camp Green, Charlotte N C, Lieut. W M Scruggs, New York.

To Camp Hancock, Augusta, Ga, for duty, Lieut Joseph G Yocum, New York

To Camp Sevier, Greenville, S C, Lieut J L Bryson, New York

To Fort Adams, R I, for duty with *Provisional* C. A, Lieut John K. Johnston, Madison Barrack

To Fort Benjamin Harrison for instruction, Capts George Francis Wilklow, Allenville Herbert Cerda de Vilarrestan Cornwall, Harold M Hays, Gustave Randolph Manning New York, Eugene Francis Connally, Troy Stephen Warner Perry, Warwick, Lieuts Forest R. Mildrew, Auburn Hubert Emile Chauvin *Brentwood* James Hayes Blakeney, William G Phillips, Jr, *Brooklyn,* Geoffrey Charles Henry Burns, Central Islip, Walter L Weeden, Clifton Springs, Harvey Columbus Hardegree, Flushing, George John Geisler, Hempstead, Victor Gabriel Bourke, Livingston Manor, George Augustine Green, Mechanicsville, John Francis Holden, New Rochelle, Valentine Collamer Baker, Edward Martin Bernecker, Edward Guilford Cary, Henry Arthur Cassebeer, James Joseph Fitzgerald, Maximilian Frick, Lewis Greenberg, Samuel Greenfield, Albert O Jimenis, Lipman M Kahn, John J Lancer, Philip J Lipsett, Henry M Moore, William A Murphy, Joseph E. Raia Joseph Schapiro, New York, Raymond Samuel Barry, John Lewis Bishop, Francis J Talbot Niagara Falls, Clarence Albert Greenleaf, Olean, Leo J Ward, Ossining, Rupert Vincent Gibbons, Oyster Bay, Leon James Barber, Benjamin Harrison Dike, Paul M Parker Rochester George Warren Beebe St Johnsville, George Byron Brown, Saratoga Springs, Garrett Marcellus Clowe, Waldron A Stearns, Claude W Walker, Schenectady, Charles A Joy, Sonyea, William B McKeon Troy, John Elwyn Cochrane, Valatie, Watson A Lawrence, Valhalla, Robert E Plunkett, Whitehall, Lowill T Genung, Worcester, Benjamin Harrison Betts, Yonkers

To Fort Ethan Allen, Vt for duty, Lieut. Leo G Weishaar Mount Vernon

To Fort Oglethorpe for a course of instruction, Capt. Harry R Stone, Lieuts. William V Healey, New York, Frank W Schwartz, Springvalley

To Fort Ontario N Y for duty with hospital Unit N, Major Ralph A Stewart, Capt Milton Bodenheimer, Lieut Donald E Brace, New York

To Fort Slocum, N Y for duty, Lieuts Benjamin F Van Duzee, Holland William C McKnight, New York

To Fort Royal Va., Capt G Draper, New York

To New York General Hospital No 1, Lieut Norman E Titus, New York

To Syracuse N Y for duty, Capt Archer D Babcock, Syracuse

To Takoma Park D C for duty, Capt Erastus Corning, Albany

To Washington D C for duty, Major Warfield T Longcope, Lieuts Linsly R Williams, to Walter Reed Hospital, Wilbur W Stearns, New York

NORTH CAROLINA

To Camp Green Charlotte, N C, Capt J H Way, Waynesville, Lieuts S H Lyle, Franklin, G Wilkes, New River, H Robinson, Reidsville

To Camp Sheridan Montgomery Ala, Capt. Everett A Lockett, Winston Salem, Lieut Julius N Hill, Murphy

To Camp Wadsworth Spartanburg S C, Major John T Burrus High Point, Marvin L. Smoot Fayetteville

To Fort Oglethorpe, for a course of instruction, Lieut. Jasper N Anderson Albemarle, Percival R Bennett Bryson City, L Dowe Floyd, Cerro Gordo, Herbert P Moseley Farmville Edmund J Bryson Fontana Darius C Absher, Henderson, Frederick O Swindell Kittrell, Laurie J Arnold, Lillington William D McLelland, Mooresville Noah B Adams, Murphy Daniel F Patchin, Roanoke Rapids James A. Dimmette, Wallburg, Baird U Brooks, West Durham

NORTH DAKOTA

To Fort Riley for instruction Capt. Bernard S Nickerson Mandan, Lieuts Julius O Arnson, Bismarck, Orville N Meland, Grand Forks William Ginsberg, Omemee.

OHIO

To Camp MacArthur, Waco, Texas, Lieut James W Henry, Berlin Cross Roads

To Columbus Barracks Ohio, Lieut. John A Rhiel Malvern

To Fort Benjamin Harrison, for instruction, Lieut Otho J Powell Ashland Emmett Lorenzo Hooper, Athens, Arthur J McCracken, Bellefontaine John Tipton Gibbons Celina Martin H Urner Charles H Weintz Henry L Woodward Cincinnati, Abraham Benjamin Grossman, Ignatius Edward Jasinski, Daniel M MacDonald, Norman P McGay Emil E Wolf, Cleveland, Wilmer E Griffith, Hamilton, Julius Ralph Bolles, Holgate, John R Johnson Lima, Jacob Meyers Heyde Loudonville, Wayne P Macklem, Mansfield, Lee Edward Casey Minerva, John Redman Claypool, Carroll Durham Conrad, Mount Vernon William Harris Ambrose, New Petersburg, George P Tyler, Jr, Ripley, Timothy G Sellew Watertown, Theodore J Kasinli, Youngstown

To Fort Oglethorpe for instruction Lieut. Albert B Martin Blanchester

OKLAHOMA

To Camp Doniphan Fort Sill Okla Capt Benjamin H Brown Muskogee Lieuts W P Sims Drumright J A Walker Fleetwood D S Lee Cuymon N W Campbell Poteau

To Camp MacArthur Waco Texas Lieuts Robert E Calhoun Hallett Sims D Bevill Poteau

PENNSYLVANIA

To Army Medical School Washington D C for instruction, Lieuts John J Caffrey Harry C. Fish William P Mull Philadelphia and Burns S Chaffee Pittsburgh

To Camp Hancock Augusta Ga Lieuts George M Laws and Thomas L. O Drain Philadelphia

To Camp MacArthur Waco Texas Capt Henry K Gaskill Philadelphia

To Camp Sheridan Montgomery Ala Lieut Floyd D Lohr Derry

To Camp Wadsworth Spartanburg S C Capt Stillwell C Burns Philadelphia

To Columbus Barracks Ohio Lieut Lauren C Thomas Latrobe

To Fort Benjamin Harrison for instruction Capt. Ernest Marsters Vaughan Rayersford Lieuts, Richard J Miller, Robert D Scott Philadelphia John H Murray Punxsutawney and John C. Lee, Rummerfield

To Fort Des Moines for duty Frank E. Boston, Philadelphia

To Fort Ethan Allen Vt Lieut Samuel McClary Philadelphia

To Fort Oglethorpe for instruction Capts William C Heisey McKeesport Sydney K Fenollosa Pittsburgh Peter H Dale State College Lieuts Walter E. Lange Allentown David Kaufman Altoona Frank L. Baum Athol Clarence F Bernatz Braddock Frank L. Knox Claysville Lever F Stewart Clearfield Alvin Z Stoner Cumberland Valley Almon C. Hazlett Dunmore John E. Belding Joseph E Dudenhoefer Carl B Lininger Joseph A Stackhouse, Erie George L. Brown Fort Hunter Harry Callagher, Glen Olden Hugh B Barclay Greensburg William D Cleland Harlansburg Robert H Eshleman George B Kunkel Clark S Long Harrisburg Joseph C Kocheczynski Hazleton Harry J Treshler Homestead Jacob J Schwegler Kennett Square Raymond C Fagley Kulpmont Joseph J Bellas, Lansford Alfred D Strickler Lebanon Charles M McCoy Lewistown Nathaniel C Shafritz Mont Alto Frederick B Allen North Wales John J Bendick Olyphant Chester LeR Barry Oxford Joseph J Austra James H Baldwin Frank D Baumann Franklin D Benedict Albert P Berg Charles A Bigler Jr Lawrence L. Blackburn Benjamin Bowman Clarence D Bradley John W Bransfield Frank A Bridgett Alexander J P Conlen Joseph R Criswell William H Crowley Arthur M Dannenberg Richard S Davis Amos K. DeBell Jacob L Engle Donald R Ferguson Charles B Hollis Clarence W Judd I Warner Knight William J MacMurtrie Samuel McClary James W McMonagle Richard L. McNeer Stirling W Moorhead John P O Brien Albert Pilkington, William C T Poulson George M Purves Percy H Shaw James E. Talley Morris C. Thrush Harry E. Ungerleider Philadelphia Samuel J Marks Philipsburg Clarence J Buck Wallace Bulford Edward Graver Benjamin Weiner Pittsburgh James E Dwyer Polk Samuel A. Leinbach Quakerstown Walter M Bertolet John G Knauer Addison M Rothrock Reading Samuel B Gray Scottsdale Harvey B Cornell William J L. Davis William J O Malley Frank R. Wheelock, Scranton Leo T Mullahey Shenandoah Jesse L. McCracken Smithfield James A Buchana Strickersville Samuel A. Baltz, Uniontown Henry A Rothrock, Westchester Augustine J Mulligan White Haven Francis L Alexaitis John W Cressler William J Doyle Wilmer C Dreibelbies Cyrus Jacobosky Thomas N McLaughlin Leo C Mundy Robert H Murdock Wilkes-Barre, and Benjamin H Patterson Wilkinsburg

To Fort Slocum N Y Lieut. Frank N Greene, Philadelphia

To Governors Island N Y for duty Capt. James T Madden Pittston.

To Rockford Ill to Camp Grant for duty Lieut. Allen H Moore Philadelphia.

To Spartanburg S C for duty Capt. Sigmund L. Gans Philadelphia

To Syracuse N Y with infantry brigade to complete the medical personnel Lieut. Melbourne J Pond Warren

PHILIPPINE ISLANDS

Honorably discharged Capt. George B Angle Manila

RHODE ISLAND

To Camp Kearney Linda Vista Calif Lieut. J G Norman Providence.

To Fort Ethan Ellan Vt for duty, Lieut Richard Metcalf Providence.

To Fort Ontario N Y with Hospital Unit N Lieut. Robert H Whitmarsh, Providence.

SOUTH CAROLINA

To Camp Sevier Greenville, S C. Capt. C B Earle Greenville Lieuts. A. B Weathersbee, Belton E. W Pressly Clover C. B Geiger Manning

To Fort Oglethorpe for instruction, Lieuts. Fitzhugh P Salley Buffalo John C. Wieters Charleston John R. Claussen Claussen Lindsay Peters Columbia James A. Norton Conway Oscar A. Alexander Andrew T Baird, Darlington William J Burdell Lugoff Dalmar R. Blakeley Mauldin Frank D Mower Newberry William B Ackerman Walterboro

SOUTH DAKOTA

To Fort Riley for instruction Lieuts Frederick O Kaps Britton Glenn V Sigler Highmore.

TENNESSEE

To Camp Bowie Fort Worth, Texas Lieut W Hibbetts Nashville

To Camp Logan Houston, Texas, Capt J M Ballew, Memphis.

To Fort Oglethorpe for instruction Lieuts Joseph P Delaney, Arrington David T Austin Bogota Victor H Miller, Bolivar, Nicholas Ardan, Bristol Benjamin C Arnold, Jackson Llewellyn M Dykesk Johnson City Ludlow Lambain, Knoxville Edgar S Turner, Lafollette Sam W Donaldson Maryville Clarence A Bell Kinsey M Buck Max Kaplan Lawrence L. Keller Memphis William R. Arrants Thurman B Civan Nashville Robert L Dossett, Tullahoma, Daniel L. Haggerty Unionville Thomas W Rhodes, Whiteville.

To Fort Riley for instruction, Lieut Benjamin G Allen, Chattanooga

TEXAS

To Ambulance Company No 12 Capt Paul N Bowman, San Antonio

To Camp Bowie Fort Worth, Texas Lieut G A Deason, Henderson

To Camp Cody Deming N M Capts Thomas C Brooks Bay City, Joseph S Jones Galveston Ernest H Hamilton, Kilgore.

To Camp Hancock Augusta Ga Lieut Knight W Field Dallas

To Camp Logan Houston Texas Capt G A McBride, Harlingen Lieuts J E Cooke Mart W P Barton, Overton

To Camp MacArthur Waco Texas Lieuts, Robert M Prather, Beeville Harry D Nifong Britton

To Camp Wadsworth Spartanburg, S C Lieut Robert L. Dinwiddie, San Antonio

To Fort Benjamin Harrison for instruction, Lieut Lewis William Fetzer Dallas

To Fort Bliss Major Frederick H Mills Fort Bliss

To Fort Riley for instruction, Lieut Thomas M Greenwood, Buff Dale

To Fort Sam Houston Camp Kelly South San Antonio for assignment to Thirty Fifth Aero Squadron Lieuts Charles H Brownlee Burnet Thirty Fourth Aero Squadron Edwin R Townsend Fredericksburg Thirty Seventh Aero Squadron, Herbert L. McNeil Galveston.

To report by telegraph to commanding general Southern Department for duty Lieuts Jesse H Lander Beeville Young J Mulkey Clifford C Parrish Fort Worth Talmage O Wooley, Germantown, William O Williams Houston Lucian Nicholson Paris.

UTAH

To Fort Douglas Utah for duty Capt. William F Beer Salt Lake City

VERMONT

To Fort Benjamin Harrison for instruction Lieuts Charles E Libbey Danville Frank Leslie Gilbert, Grofton George Lucian Bates, Morrisville.

To Fort Riley for instruction Lieut. Frederick E Clark Burlington

VIRGINIA

To Fort Oglethorpe for a course of instruction Capt. Howard Fletcher Fairfax Lieuts. Bernard Barrow, Barrows Store William S Wiley Bristol Erik T Sandberg Cardinal Samuel T Elliott, Danville Urbane F Bass Fredericksburg Charles A Young, Gore James S Burger Hopewell Benjamin B Dutton Lot Otis T Amory Newport News Oliver F Blankingship James G Boisseau Richmond

To Fort Riley for instruction Lieut. William H Howard Hampton.

To Rockford Ill Camp Grant for duty Lieut. David A. Haller Pocahontas

WASHINGTON

To Camp Wheeler Macon Ga. Lieut H L. Upshaw, Tacoma

To Fort George Wright Wash for duty Lieut. Nathaniel E. Roberts, Olympia

To Fort Riley for instruction Lieut. John W Adams Waterville.

To report by telegraph to the commanding general Western Department for assignment to duty Capt. Herbert C Liesser Vancouver Lieut. John A. Mapes Index.

To Vancouver Barracks Wash for duty Capt Herbert C. Leisser Vancouver

WEST VIRGINIA

To Fort Benjamin Harrison for instruction Capt. John Budd Thompson Spencer

To Fort Oglethorpe for instruction Lieuts Atlee Mairs Charleston Charles F McHood Alderson John J Goodwill Coopers George F Grisinger Gamoca Dennis J Cronin Huntington Grover C Roberson Hurricane Conrad F Sayre Mason Meriwether L. Anderson Richmond and Emerson Megrail, Wheeling

WISCONSIN

To Fort Riley for instruction Capts Clarendon J Comos, Oshkosh and Frederick C. Huff Sturgeon Bay Lieuts. Sylvester J Driessel Barton Albert A Axley Butternut Henry B Beeson Cornell Frank J Hager Denmark Louis J Bennett Fort Atkinson William A. Joseph, Hancock Royal C. Rodecker Holcombe Harry J Burns Hudson Frank O Brunkhorst Kewaunee Norman O Nelson Madison Edgar B Elvis Medford Irving Van Vliet Grannis, Menomonie Gerhard A. Bading Max Bornstein and Albert G Jenner, Milwaukee John C Johnson Ogdensburg Marlin C Crane Osseo Herbert T Barnes Pewaukee Paul H. Fowler Plaine Edgar W Bedford Sheboygan Richard W A. Dehmel South Germantown Edward P Evans South Milwaukee George L Badeaux, Spooner Wayne F Cowan Stevens Point Harry A. Keenan Stoughton Walter A McEachern Superior Neal S Simons Taylor George R. Baker, Tomahawk John E Boland Two Rivers Harry E MacLaughlin Waupaca George LeR. Converse, Webster James C. Tyvand Whitehall Charles C Rowley Winnebago

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest, such as relate to society activities, new hospitals, education, public health, etc.)

ILLINOIS.

Whooping Cough.—The health commissioner of Winnetka reports that there have been forty-six cases of whooping cough in that suburb, with two deaths

Infantile Paralysis—During the week ending August 18, sixteen cases of infantile paralysis were reported to the state department of health, seven of which were outside of Chicago

Personal—Dr Howard T Child, Kankakee, has been elected pathologist to the State Hospital for the Insane, Norristown, Pa ——Dr Cyrus H Anderson, McLeansboro, recently appointed superintendent of the Anna State Hospital, has sold his newspaper, the *Leader* ——Major Herman H Tuttle, M C, Ill N G, Springfield, has been appointed sanitary inspector of Camp Logan, Houston, Texas ——Drs Frank P Norbury, Springfield, and Edwin C Hayes, Urbana, have been appointed members of the state board of public welfare commissioners

Chicago

Personal—Dr Emil C Dudley has been appointed a member of the state board of public welfare commissioners —— Dr John L Porter has been appointed a member of the commission on military orthopedics

Graduate Lectures—Major G Seelig, professor of surgery in the St Louis University, recently delivered a lecture on "Shock" and Dr Bennet M Allen, professor of zoology in the University of Kansas, an address on "Experiments on the Glands of Internal Secretion in Amphibian Larvae" before the faculty and students of the graduate summer quarter in medicine of the University of Illinois

New Appointments at Northwestern—Northwestern University Medical School announces the following faculty appointments for 1917-1918 Drs Frederick G Harris, professor of dermatology and syphilology, succeeding Prof Joseph Zeisler, who becomes professor emeritus of dermatology, Frank C Becht, professor of pharmacology, succeeding Prof Hugh McGuigan, John Ridlon, honorary professor of orthopedic surgery, John L Porter, professor of orthopedic surgery, Herbert A Potts, professor of oral surgery, Frank E Simpson, adjunct clinical professor of dermatology, Charles P Caldwell, adjunct clinical professor of medicine, Edward L Moorhead, adjunct clinical professor of surgery

INDIANA

New Medical School in Indiana—A letter from the secretary of the University of Notre Dame, Notre Dame, indicates that that university has established a department of medicine which will offer only the first two years of the medical course Two years of college work are to be required for admission, which, followed by two years of medical work, completes the course for the degree of bachelor of science in medicine

MARYLAND

Notice from Health Department to Parents—A bulletin has been issued by the health department requesting parents and guardians to have every child of school age suffering from diseased tonsils, adenoids or defective eyesight treated before entering school in order to prevent an epidemic of infectious diseases

Personal—Dr Alexander D McConachie, Baltimore, is at his home, convalescent after an operation for appendicitis, performed August 1 ——Dr Henry Barton Jacobs, Baltimore, has been elected governor of the Newport Reading Room for a term of three years ——Drs William Robert Johnson and Robert William Johnson, Baltimore, twin brothers, received commissions in the Medical Reserve Corps recently

MISSOURI

Personal—Dr Jesse L Eaton, Bismarck, division surgeon of the Missouri Pacific and Illinois Southern railroads, has been appointed superintendent of State Hospital No 4, Farmington, and assumed control of the institution, August 1

Correction—In The Journal, August 18, there appeared a notice of the death of Dr Marcus B Austin, Brunswick, Mo The information was derived from a local newspaper, and was premature, as Dr Austin writes that, although he has been ill with septicemia, he is very much alive and has no present intention of dying

Health Committee Named—The chairman of the Missouri Council of Defense has announced the appointment of the following committee on public health Drs Raymond C Shaffer, St Louis, dean of Washington University Medical School, Guy L Noyes, Columbia, dean of the University of Missouri Medical School, George H Jones, Jefferson City, secretary of the state board of health, William T Coughlin, St Louis, and Herman E Pearse, Kansas City

St Louis

Personal—Dr John S Young, a member of the Harvard Surgical Unit, who was reported to have been killed, replies, contradicting the rumor of his death, which he says is "Quite wrong" ——Drs John W Stewart and Herbert S Langsdorf have been appointed resident surgeons at the City Hospital ——Dr Harry T Evans has been appointed house physician for the Missouri State Sanatorium, Mount Vernon.

NEW YORK

New Convalescent Home—A tract of 550 acres between Peekskill and Oscawanna in Westchester County has been purchased as a site for the Valeria Home for Convalescents, which was founded by the late Jacob Langeloth

Medical Director Assumes Control—Dr Roy L Leak, superintendent of the Syracuse City Psychopathic Hospital, and professor of medical jurisprudence in the medical department of Syracuse University, has succeeded Dr William C Sandy, Jr, resigned, as medical director of the South Carolina State Hospital for the Insane, Columbia

Compulsory Hospital Law Passed—The committee on the prevention of Tuberculosis of the New York State Charities Aid Association has been successful in securing an amendment of the county tuberculosis hospital law, whereby the erection of hospitals is mandatory in counties of 35,000 population or more. The new law affects twenty counties, eight of which had previously taken action leading to the establishment of a hospital, but had not yet let contracts, of these, two have already signed contracts for the erection of a hospital Of the twelve remaining counties which had taken no previous action, eleven have since taken definite steps such as appointment of committees to secure sites, advertising for bids, etc.

New York City

Imprisoned for Draft Plot—Dr Samuel J Bernfeld, a member of Exemption Board No 99, charged with conspiracy to obstruct the draft laws, is reported to have entered a plea of guilty, and to have been sentenced to two years' imprisonment in the Federal Penitentiary, Atlanta, Ga The specific charge against the defendant was the acceptance of a bribe from a registrant to exempt him

School for Crippled and Blind—New York is to have a Red Cross institute for teaching crippled and blind men to be self-supporting Jeremiah Milbank has contributed $50,000 for the promotion of this undertaking, and Edward T Devine of the New York School of Philanthropy has gone to France to study the method of teaching the blind and cripples in the reeducational schools of France

Rockefeller Releases Funds for Emergency War Work—Recently it was announced that Mr John D Rockefeller had withdrawn the stipulation with reference to the administration of the Rockefeller Foundation, by which he reserved the right to indicate how a portion of the income should be spent He has now gone a step further, and has decided that in addition to giving the income from the $100,000,000 given the foundation for emergency war work, $10,000,000 of the principal may be drawn on Already appropriations aggregating $6,426,872 have been made from this draft on the foundation's investments, including $5,000,000 given the Red Cross The appropriations announced include the Young Men's Christian Association, $100,000 for the same purpose, building and equipping the demonstration war hospital, $300,000, and $100,000 for the Belgian Relief Commission The International Health Board received $100,000 for combating tuberculosis in France, in connection with the French government, while lesser sums have been given for Assyrian and Armenian relief, for the preparation and distribution of serums to be used in the war hospital special research in war medicine, and other needs growing out of the war

NORTH DAKOTA

New State Board—Drs Albert W Skelsey, Fargo, Joseph C Suter Grafton and Alexander J McCannel Minot have been appointed members of the State Board of Medical Examiners

Personal—Dr Gustave L Rudell has been appointed local surgeon of the Minneapolis St Paul and Sault Ste Marie Railway at Plaza ——Dr Peter A Nestos, Minot has succeeded Dr Alexander J McCannel as local surgeon of the Minneapolis St Paul and Sault Ste Marie Railway

OHIO

Whooping Cough—The health commissioner of Cleveland announces that there are 1 000 cases of whooping cough in the city and that thirteen deaths have been caused by the disease since February 1

Physicians' Building Planned—A sixteen-story building is to be erected at Cleveland which will cost $750 000, and will be used exclusively by physicians and dentists, and dealers in medical and dental supplies

Cancer Committee Appointed—The following have been named as a state committee to investigate cancer, and to institute measures whereby the mortality from this cause may be reduced Drs Andre Crotti Columbus Julius H Jacobson, Toledo and Charles E Holzer Gallipolis

The Tuberculosis Conflict—The Cleveland City Council has been asked for an immediate appropriation of $500 000 to provide a hospital for patients with advanced cases of tuberculosis with accommodation for 350 patients, accommodation for 200 additional patients in the incipient stage, and a nurses' home at the Warrensville Sanatorium

Personal—Dr William K Ruble Martinsville, who was recently elected treasurer of Clinton County has moved to Wilmington ——Dr John J McShane secretary of the board of health of Akron has resigned to accept a position with the Illinois State Board of Health ——Dr E Benjamin Gillette has succeeded Major Dale Wilson as police and fire surgeon of Toledo ——Dr Claude C Craig Urbana, announces that on account of his health he will retire from the practice of medicine.

Hospital Notes.—Differences between the authorities of St Elizabeth's Hospital Dayton and the medical staff of the instution have resulted in the elimination of the maternity ward of the hospital ——The Fountain Park Sanatorium which is under construction in Champaign County will be ready for occupancy this month The building will have cost, when completed about $10 000 ——Dr Wilford White Ravenna states that on account of ill health he contemplates the permanent closure of the White Hospital ——The Inter-County Tuberculosis Hospital Chillicothe which is being built by Fayette, Ross Pike Vinton, Pickaway Clinton and Jackson counties, is now completed and ready for occupancy

Postgraduate Course at Dayton—The Second Councilor District branch of the Ohio State Medical Association will hold a medical chautauqua at Dayton September 24-28 On each day lectures will be given from 9 o clock until 4 with the exception of one hour which is set apart for lunch Among the lecturers will be Drs Charles Emerson Indianapolis who will speak on Internal Medicine and Nervous Diseases" Dr Martin H Fischer Cincinnati, on Physiology and Focal Infections" Dr Alfred S Warthin Ann Arbor Mich., on 'Pathology ', Dr Isaac A Abt, Chicago on 'Pediatrics' , Dr Rudolph W Holmes Chicago, on 'Obstetrics , Dr Edward Carl Rosenow Rochester, Minn , on 'Focal Infections in Relation to Systemic Diseases,' and Dr Carl A Hamann, Cleveland, on Surgery

PENNSLYVANIA

Medical Corps Changes—The following officers have been commissioned Lieut.-Col William E Keller Lackawanna County, July 17 assigned to duty with the division, Charles H Furnee, Armstrong County, assigned Sixteenth Infantry

Infantile Paralysis—There have been reported to the state health department from New Castle thirty-four cases of infantile paralysis in a little more than a month Moving picture theaters have been closed, and children have been prohibited from attending church and Sunday-school services Thus far nine deaths from the disease have been reported.

Personal—Dr David L Simon, Pittsburgh, has been appointed chief police and fire surgeon, succeeding Dr D E Sable, who is on duty as major in the First Field Artillery The salary of Dr Richard G Burns, acting director of the Pittsburgh Department of Health, has been increased to $7,000 ——Dr John J Coffman, Scotland, is convalescent after a serious illness ——Dr Samuel G Dixon, state health commissioner, Pittsburgh, is under treatment at the White Pine Sanatorium, Chambersburg

Philadelphia

New Red Cross Hospital—The superintendent of the Medico Chirurgical Hospital announces that the present staff of the hospital will be retained in its entirety as the staff of the First General Red Cross Hospital The hospital building will be left intact until the end of the war

Prevention of Tuberculosis—Capt Milton H Fussell and Lieuts David Riesman and Augustus A Eshner, M R C, U S Army, have been appointed a board to investigate the conditions which may develop tuberculosis among officers of men among the National Army They are making systematic surveys of the various mobilization and cantonment camps

Personal—The following physicians of Philadelphia have responded to the call of the Surgeon-General for men skilled in the treatment of the eye Dr George E de Schweinitz, who has been commissioned a major in the Medical Reserve Corps, Drs Benjamin F Baer Thomas B Holloway, William T Shoemaker John G Clark, Albert Pilkington, John R Forst and L Webster Fox.

Women's Medical College to Train for Service—The Women's Medical College of Pennsylvania has arranged three special lecture courses to equip those who wish to serve their country For the women who plan reconstructive work in the devastated villages of Europe, there will be thirty lectures weekly throughout the college year This is a course on personal and public hygiene Also there will be a course in laboratory technic to prepare for routine work in war hospitals, and a course in nutrition and dietetics

Graduate Physicians Only Appointed.—At the meeting, August 7, of the South Philadelphia Branch of the Philadelphia County Medical Society, resolutions were adopted taking exception to the appointment of an osteopath as a member of the draft exemption board, recommending that only regularly graduated physicians be appointed on the draft board, and referring the matter for immediate approval to the county medical society, with the request that the governor of the state be notified of the attitude of the profession in this regard

Hospital Units Ready—Four of the six hospital units being formed in this city for active service have their personnel and equipment all complete, and are ready to sail at any time These are the Jefferson, known as Base Hospital Unit No 38, comprising twenty-two doctors, two dentists, sixty-five nurses, 152 enlisted men and five civilian employees, Red Cross Hospital Unit A of the Presbyterian Hospital comprising twelve staff physicians, twenty nurses and fifty aids, the Episcopal Hospital, Base Unit No 34, comprising twenty-five staff members five stenographers sixty-five nurses and 148 enlisted men, and that of the University of Pennsylvania Besides these the Hahnemann Hospital Unit and the Naval Hospital Unit of the Methodist Episcopal Church will be complete in the next few days

CANADA

Legislation for Roentgenography—The Medical Council of Ontario has initiated a movement to secure legislation to prevent unqualified men from doing roentgenographic work

Free Distribution of Antitoxin.—Dr Maurice M Seymour, Regina commissioner of public health for the Province of Saskatchewan, announces that on and after September 1, free distribution of diphtheria antitoxin will be made in that province by the provincial bureau of public health

Sick and Wounded in Canadian Hospitals—August 17, there were 8,811 soldiers receiving treatment in Canada , 7,032 in convalescent homes, 1,104 in sanatoriums for the treatment of tuberculosis and 675 in other institutions The returned soldiers are classified as those fit for general service, those fit for service abroad but not for general service, those fit for service in Canada , those temporarily unfit for service, and those awaiting discharge or reclassification.

The Bruce Report.—In spite of repeated requests in the Canadian House of Commons, the report of Col Herbert A Bruce Toronto, in reply to the Baptie report, has not yet been presented in that body It is understood that many of the recommendations made by Dr Bruce have since been adopted by the Canadian military authorities, and the delay in presenting the report is due to the fact that it had been forwarded to the Acting High Commissioner in London, and has not yet been returned

Personal—Capt Roland Young, M D, Oshawa, Ont, has returned after two years' service overseas Dr Young was in a hospital in Malta with the Royal Army Medical Corps, and lately had been in charge of an internment camp of Turks near Cairo, Egypt.——The Military Cross has been awarded the following members of the Canadian Army Medical Corps, recently Capts Hugh Hart, Douglas B Kennedy, Ronald H MacDonald, Saskatoon, Robert J Manson and Arthur C Armstrong——The *Croix de Guerre* has been awarded by the French government to Lieut W E Ord, R A M C

Venereal Disease Problem—The Toronto Board of Health is going to grapple with this problem so far as it concerns the city of Toronto It is not likely that notification will be required, as legislation would need to be sought for such power from the provincial legislature, but it may be expected that there will be some arrangement brought about between the medical officer of health and the practitioners of the city A sign of good omen is the interest manifested in repeated editorials on the subject from time to time appearing in the public press A few months ago the whole subject was gone into thoroughly by the public health section of the Academy of Medicine, and a resolution adopted calling on the provincial board of health to carry on an educational campaign, and for the government to lend financial assistance to the extent of $10,000 for the equipment and maintenance of district laboratories in various parts of the province

New Officers—The New Brunswick Medical Society annual meeting was held the latter part of July in St. John Dr Frederick H Wetmore, Hampton, president, Dr George G Melvin, St. John, second vice president, and Dr Stephen H McDonald, St John, corresponding secretary——The Medical Society of Nova Scotia annual meeting was held in July at Halifax president, Dr Jordan W Smith, Liverpool, secretary-treasurer, Dr James R Corston, Halifax, reelected The next annual meeting will be held in Liverpool——The Canadian Medical Association annual meeting was held in Montreal president, Dr James McKenty, Winnipeg, Man Winnipeg was decided on as the place of meeting in 1918——The Prince Edward Island Medical Society annual meeting was held in Summerside in July president, Dr Edwin T Tanton, Summerside, and secretary, Dr Ira J Yeo, Charlottetown, reelected

GENERAL

Exposition of the Chemical Industries—The third National Exposition of Chemical Industries will be held in Grand Central Palace, New York, during the week of September 24 The exposition will cover all the ramifications of chemical industry

Bequests and Donations—The following bequests and donations have recently been announced

St Mary's Free Hospital for Children, New York, $2,000, by the will of Mrs Laura F Hearn

Flagler Hospital, St Augustine, Fla, $125,000, by the will of Mrs Robert Worth Bingham, to rebuild the hospital, which was destroyed by fire last year

Orthopedic Hospital, Philadelphia, $30,000, by the will of Lillie G Newton

Malaria and Hookworm—Surg French Simpson, U S P H S has been ordered to Columbia, S C, to take charge of the campaign against malaria——Dr Charles Wardell Stiles, U S P H S, has discovered forty-seven cases of hookworm in seventy-five recruits mobilized for war service, and these findings have caused the United States Public Health Service to recommend the prompt examination for hookworm of all units of the National Guard and National Army, especially those from the South

Missouri Valley Physicians to Meet.—The thirtieth annual meeting of the Medical Society of the Missouri Valley will be held in Lincoln, Neb, September 20 and 21, with headquarters at the Hotel Lincoln Dr Charles R. Woodson, St Joseph, Mo, is president of the association, and Dr Charles Wood Fassett, Kansas City, Mo, secretary The arrangements are in the hands of the Lancaster County Medical Society, with Dr Karl S Hohlen as chairman The principal topic for the meeting is announced as "How Can a Medical Man Best Serve His Country?"

Mississippi Valley Association Meeting—The forty-third annual meeting of the Mississippi Valley Medical Association will be held in Toledo, October 9-11, under the presidency of Dr Channing W Barrett, Chicago The Hotel Secor has been selected as headquarters, and Dr Willard J Stone, Toledo, is chairman of the committee of arrangements The oration in surgery will be delivered by Dr Joseph C Bloodgood, Baltimore, and on the last day a joint session will be held with the Inter-State Association of Anesthetists The principal symposiums will be on Surgery of the War, Otology and Ophthalmology, Goiter and Syphilis

Federal Child Labor Law Becomes Effective—The Federal Child Labor Law becomes effective, September 1, after which date no child under 14 may be employed in any factory, mill, workshop or cannery in the United States, the products of which are to be shipped in interstate commerce, and no child under 16 years of age may be employed in a mine or quarry The working day of children between 14 and 16 years of age must not be longer than eight hours, and they may not be employed between 7 p m and 6 a m The Children's Bureau of the Department of Labor is actively undertaking the coordination of this new federal law with those of the various states

Civil Service Examinations—The following examinations are announced by the United States Civil Service Commission

September 18 Inspector, Child Labor Division, salary, $1,800 to $2,400, duties, to keep informed as to the employment of children in all industries to make inspections of factories, mills, mines, workshops, etc , to supervise the work of assistant inspectors, and to aid in the enforcement of the law

September 18 Assistant Director, Child Labor Division, salary, $2,400 to $2,820, applicants should be familiar with the general problems of child protection and factory inspection, and should have administrative ability

September 18 Experts in Child Welfare, salary, $1,800 to $2,400, duties, the planning, supervising and writing of reports on special studies of the various aspects of child welfare, such as infant mortality, the birth rate, orphanages, desertion, juvenile court, dangerous occupations, accidents and diseases of children, employment, and legislation affecting children

September 18 Assistants in the Prevention of Infant Mortality (women), salary, $1,800 to $2,400, applicants must be graduates from a school of nursing, duties, to assist in conducting investigations into the causes of infant, child, and maternal mortality, and into community measures for their prevention, and to make reports on these subjects, with recommendations for improvement

September 18 Experts in the Prevention of Infant Mortality, salary, $2,400 to $3,600, applicants must be graduates of a medical school of recognized standing, and must have at least three years' specialization in hygiene and diseases of childhood or in the prevention of infant and child mortality, the duties are to plan and conduct investigations into the causes of infant, child, and maternal mortality, into the methods of their prevention, and into dangerous and injurious occupations and other matters relating to the health of children

September 19 20 Special Agents and Research Assistants, salary, $1,200 to $1,680, duties, the collection in the field of data for use in the preparation of reports.

Applications should be made to the Civil Service Commission, Washington, D C., or a local civil service board, stating the title of the examination desired, and these applications should be filed with the commission at Washington, prior to the hour of closing business on the date stated above

FOREIGN

Deaths in the Profession Abroad—The cable brings word of the death of two prominent chemists in Germany last week, **Adolf von Baeyer**, a giant of chemical synthesis, professor of chemistry at the University of Munich, raised to the hereditary nobility with the title of "Excellency" some years ago Also **Eduard Buchner**, professor of chemistry at the University of Wurzburg, and chief of the Chemical Institute He has been serving at the front with the rank of major, and succumbed to wounds——**H Taborda**, an eminent medicolegal authority in Argentina, director of the *Revista del Circulo Medico Argentino* and founder of the international organization of university students of Latin America——**H Gallay**, inspector of the French colonial troops——**H F H Newington**, president of the Medico-Psychological Association of Great Britain and Ireland, aged 70——**T B Darling** of Edinburgh Recent casualty lists contain the names of Capt **G S Pirie** of Cape Town, Major **W D Kirkland** of Australia, Lieut.-Col **J H Horton**, aged 46, who had served in Africa, in India and with the British Red Cross in the Balkan War of 1912 He had charge of an Indian field ambulance in France since the beginning of the war, Capt. **R H Bharucha** of India, Capt **R H Drennan** of Ireland, Capt. **G D East** and Capt **A C Edwards** of England

PARIS LETTER

Paris Aug 2, 1917

The War

IMMEDIATE SURGICAL TREATMENT OF PULMONARY WOUNDS

At one of the recent meetings of the Societe de chirurgie de Paris Dr Barnsby reported four new cases of primary thoracotomy in the treatment of pulmonary wounds caused by the bursting of shells all of which cases resulted in recovery Dr Lefevre operated in two of the cases and Dr Barnsby in the other two In all four cases the operations were performed under ether anesthesia on a closed thorax and were undertaken with a view to the direct treatment of the pulmonary wound by the extraction of the projectiles and the costal splinters the suturing of the lung and the cleansing of the pleura In three of the cases there was a large enclosed fragment covered by a strip of flesh In one case the projectile had penetrated the right side of the chest after the manner of a seton and had pierced the right lung producing a hemorrhage on which account the lung was resected and sutured The projectile also ripped up the diaphragm for a length of 12 cm and introduced costal splinters and particles of clothing into the lung and the pleural cavity In all these cases one side of the chest was evacuated and in two cases the suturing of the lung was accomplished (in one case after resection) In two of these cases particles of clothing and free splinters embedded in the lungs or in the pleura were removed In all cases a cleansing of the pleura under ether and a primary suture without drainage were effected

Barnsby emphasizes the following points 1 The simplicity of ether anesthesia for which the tolerance of patients with chest wounds is excellent. 2 The extraordinary ease with which the severely wounded endure thoracotomy and the possibility of working more deliberately in thoracotomy as compared with laparotomy as is shown by the curves of maximal and minimal tension In the first case (a difficult thorax case) the maximal tension decreased at the end of the ether anesthesia rose again shortly and became stable in spite of the pneumothorax the traction on the lung and the cleansing of the pleura under ether In the second case (a simple abdominal case) all the steps taken in the course of the operation—the incision of the peritoneum traction on the stomach or the intestine, and lavage of the peritoneum under ether—produce an abrupt effect on the maximal and minimal tension 3 The advantage of anterolateral thoracotomy (according to Duval) with ample permanent or temporary resection of the fourth rib which permits one to see everything and to suture a lung quickly and well 4 The frequency of free costal splinters embedded in the lungs or the pleura 5 The desirability of primary suturing if one operates within six hours and everything is in good shape and the pulmonary wound is correctly repaired 6 That an advantage might lie in favor of draining the pleura if one operates after twelve hours or more, and if it is impossible to make a taut suture of the lung and more especially of the wall, which occurs frequently in the case of broken ribs, accompanied by extensive destruction of the pleura and the parietal muscles The purpose of pleural drainage would be to avoid complications benign it is true as compared with the operation itself but nevertheless troublesome such as repeated punctures of the pleural collections which may be still frequent, and the drainage made necessary by secondary purulent pleurisy

To sum up primary thoracotomy for the immediate treatment of pulmonary wounds is an excellent operation which, in certain cases makes it possible to save the lives of men otherwise doomed to certain death Besides an open thorax as regards which there is common agreement, it constitutes the operation of choice if it is a question of applying it also to serious wounds within a closed thorax. By this is meant men with chest wounds especially those who have been hit by large shell splinters who reach the first-aid stations suffering from shock with a pale facies, a strong dyspnea, a bad pulse, those whose tension is low and sinks lower during the hour following their arrival—those who, in a word most frequently die if one refrains from operating Intervention, to be sure, will not save them all but it will enable us to lower the percentage of mortality

SPECIAL DISPENSATION TO STUDENTS KEPT BACK BY THE WAR

The minister of public instruction recently signed a decree abolishing, for the duration of the war, certain regulations in regard to grades and credits which will inure to the benefit of students who have been kept back in their studies owing to the exigency of war This decree applies exclusively to the entrance requirements for admission to the colleges and institutions of higher learning, and to special exemptions granted with reference to prerequisite scholarship in connection with studies pursued in these institutions

AMERICAN SANITARY AID IN THE FIGHT AGAINST TUBERCULOSIS

A few days ago there arrived in Bordeaux an American sanitary mission chairman of which is Dr Livingstone Ferrand president of the University of Colorado Associated with Dr Ferrand are Dr Miller of the University of Columbia, Dr Fox sociologist and chairman of the State Charities Aid Association of New York, and Mr Place, secretary of the mission

Toward the middle of 1915 the report was spread in the United States that tuberculosis was making frightful ravages in France not only in the army, but among the civil population as well Accordingly the American government sent to France last winter a commission of inquiry, whose duty it should be to inquire into the matter The truth of the report was soon verified Under these circumstances, the government of the United States with the cooperation of the Rockefeller Foundation decided to aid the French authorities in their fight against the devastating scourge by placing at their disposal men who had had experience with the antituberculosis methods employed with such great success in America as shown by the following statement made by Dr Livingstone Ferrand 'During the last twenty-five years the mortality due to tuberculosis has diminished in America by 50 per cent., owing to the therapeutic and preventive measures that have been adopted"

The mission will visit without delay those of our hospitals in which tuberculous patients are cared for and will aid in the introduction and application of the methods which have been developed in the United States

LONDON LETTER

London, Aug 7, 1917

The Annual Meeting of the British Medical Association

The eighty fifth annual meeting of the British Medical Association has been held in London In consequence of the war no scientific papers were read and only political subjects were discussed The resolution of the Central Medical War Committee approving of the principle of mobilization of the medical profession apart from any question of general mobilization of the whole community so that every individual whose name is on the National Register shall be held bound to give such service as he is competent to give when required to do so by the government, was passed with the proviso, "provided such mobilization be carried out on a scheme approved by the profession under the discretion of an accredited representative" This proviso was adopted after rejection of an amendment by the Liverpool branch disapproving of any attempt to control the liberties of the profession differently from those of members of other professions

A Ministry of Health

At the request of the government, the council of the British Medical Association submitted the following scheme for the creation of the Ministry of Health "That a ministry of health should be created to take over from existing government departments such duties as are concerned with the health of the community and to deal with those duties only, that the administrative functions of the ministry should be carried out by a board presided over by a minister of cabinet rank, that the country be divided into suitable administrative areas under local administrative health centers consisting of representatives (*a*) of the rating authorities, (*b*) of the education authorities, (*c*) of the persons contributing to a scheme of health insurance (including employers of labor), (*d*) the medical profession, (*e*) public hospitals, (*f*) dentists, (*g*) pharmacists, and (*h*) nurses, that the principal medical officers of each center should be two of equal status, one representing the clinical side (chief clinical officer) and the other the preventive side of medicine (medical officer of health), that for each area, hospitals clinics or treatment centers should be recognized or established at which persons entitled to treatment under the public scheme should be able to obtain institutional consultative or specialist services on the recommendation of their medical attendant" The meeting passed a resolution by an overwhelming majority in favor of the appointment of a ministry of health The president, Sir Clifford Allbutt, was reelected president for the coming year and the hope was expressed that next year the meeting might be held at Cambridge, where the association might have the pleasure of hearing one of his polished and scholarly addresses as well as an address or two in medicine and surgery, though meetings of the sections were out of the question

The Health of London Marked Freedom from Diseases

The report of the medical officer of health of the London County Council (Dr W H Hamer) for the year 1916, which has just been issued, shows that the health of London during the year compares favorably with that of 1915 The general condition as regards nutrition of the mass of the people has probably rarely, if ever, been better, and there has been freedom beyond the most sanguine anticipations from most of the war diseases Much of this has been due to the war restrictions on communication and traffic, especially with countries abroad. The termination of the war will favor the spread of infectious diseases, and the need of the maintenance of the sanitary service, which is at present much depleted, is becoming increasingly apparent as the months pass by The deaths of infants under 1 year of age in London during 1916 numbered 8,864, or 89 per thousand births (as compared with the rate of 112 in 1915), the lowest infant mortality rate ever recorded in the county The reduction in the number of deaths from suffocation, and perhaps in less degree from prematurity, may be a result of the restriction of the sale of intoxicants There was evidence of introduction of pediculosis and scabies by returned soldiers, but typhus did not obtain any footing Smallpox was imported from time to time, but there was no serious prevalence There were 461 cases of typhoid fever reported, as compared with 607 in 1915, but the figures are not strictly comparable, as the practice relating to inclusion of military cases was not the same as in the two preceding years The great decline of recent years in prevalence of typhoid fever has proceeded practically *pari passu* with the abandonment of the consumption of shellfish and fish from polluted sources, and, with removal of laying, etc., to a distance from sewer outfalls There were 915 civilian deaths from influenza, as compared with 1,058 in 1915, 5,593 deaths from bronchitis, as compared with 7,058 in 1915, and 5,222 deaths from pneumonia, as against 7,133 in 1915 Nine cases of human anthrax occurred, all of which were traceable to the handling of hides or fiber for brushes It appears desirable that more stringent regulations governing the importation of hair should be made.

The Increase in the Price of Drugs

The steady rise in the prices of drugs continues almost without interruption, and extraordinary figures have now been reached Phenacetin now costs more than thirty times the price of three years ago, cocain six times, caffein four times, aspirin six times, phenol (carbolic acid) four times, and cod liver oil six times According to the *Lancet*, the greatly increased cost of drugs in South Africa, consequent on the war, is becoming a matter of moment to the hospitals and the military authorities A large quantity of quinin has been used to combat malarial fever in the campaign in German East Africa, and the price of quinin has advanced enormously Great difficulty is experienced in South Africa in obtaining requisite supplies of such an essential as phenol The cost of drugs at Pretoria Hospital, where there is a large amount of military work, has advanced from $10,000 to $25,000 a year, at the Johannesburg General Hospital the increase has been $15,000

The War and the Pharmacopeia

In consequence of the shortage of sugar and of glycerin (because of its use in the manufacture of explosives), the General Medical Council has withdrawn from the pharmacopeia the following all confections except confection of pepper, confection of rose, and glycerin preparations, all mixtures except chalk mixture, compound iron mixture, and castor oil mixture, all syrups except simple syrup, chloral syrup, syrup of codein phosphate, syrup of iron iodid, syrup of iron phosphate with quinin and strychnin, and syrup of glucose, all lozenges except lozenges of krameria and cocain, lozenges of morphin, and lozenges of morphin and ipecacuanha, also effervescent caffein citrate, compound decoction of aloes, liquid extract of cotton-root bark, liniment of potassium iodid with soap, saccharated solution of lime, effervescing Epsom salt, borax and honey, compound powder of almonds, compound liquorice powder, compound tragacanth powder, effervescing sodium citrotartrate, glycerin suppositories, compound tincture of cardamom, tincture of kino, tincture of wild cherry, compound tincture of rhubarb, compound tincture of senna, and iodin ointment It is thus open to pharmacists to modify these preparations

Marriages

Lieut Mathew Charles Hunter, M C., Ohio N G., Lewisburg, Ohio, to Miss Catherine Foody of Columbus, Ohio, at London, Ohio, August 6

Lieut Norman Albertus Timmons, M R. C., U S Army, South Bethlehem, Pa, to Miss Rozella Dively of Bedford, Pa, at Bethlehem, August 13

Lieut James Francis Kelly, M R C, U S Army, Dawson, Neb, to Miss Henriette Frances Wadsworth of Omaha, July 2

Capt William Joseph Coleman, Md N G, Baltimore, to Miss Laura S Chapline, also of Baltimore, recently

John Hunter Peak, M D, to Miss Emily H Myers, both of Louisville, Ky, at Cincinnati, August 8

Harold Albert Elkins, M D, Hardin, Mo, to Miss Esther Jane Orr of Mt. Carmel, Ill, August 15

Manford O Oppegaard, M D, Minneapolis, to Miss Hazel Miner of Flandereau, S D, August 11

Everett Sperry Barr, M D, Amelia, Va., to Miss Alpha Rasor of Biltmore, N C, August 6

William C Schiele, M D, Galena, Ill, to Miss Anna Reifsteck of Hanover, August 15

Jacob Richard Pierce, M D, to Miss Vesta Mae Kirby, both of Debo, Wyo, June 25

Isadore Emil Kohn, M D, to Miss Dolly Newman, both of Chicago, recently

Deaths

Frank Leon Waldorf, M D, East Syracuse, N Y, University of Syracuse, N Y, 1910, aged 30, a Fellow of the American Medical Association, and a specialist in clinical pathology, health officer of Eastwood, pathologist, bacteriologist and director of laboratories at the Hospital of the Good Shepherd, Syracuse, pathologist to the Syracuse Hospital for Women and Children, instructor in laboratory diagnosis in his alma mater, died at the Hospital of the Good Shepherd, Syracuse, August 14, from septicemia, due to a necropsy wound of the finger received July 18

Abner Esgar Foltz, M D, Ashland, Ohio, University of Wooster, Cleveland, 1868, aged 77, a life member of the Ohio State Medical Association, and president of the Summit County Medical Society in 1892, a veteran of the Civil War, designer of the clinical chart at present commonly in use, and of the optician's chart, died at his home, August 15, from cerebral hemorrhage

Henry Freeman Walker, M D, New York, College of Physicians and Surgeons in the City of New York, 1866, aged 79, a Fellow of the American Medical Association, and a member of the New York Academy of Medicine, Consulting physician to St Luke's Hospital, died at his summer home in Pittsford, Vt., August 12, from heart disease

Raleigh Claude Farquhar, M D., California, Pa, Jefferson Medical College, 1903, aged 38, formerly a Fellow of the American Medical Association, a member of the Medical Society of the State of Pennsylvania, a member of the staff of the Memorial Hospital, Monongahela, died in St Francis Hospital, Pittsburgh, August 11, from nephritis

Hosea Ellsworth Walker, M D, Rosebank, N Y, Bellevue Hospital Medical College, 1892, aged 52, a member of the Medical Society of the State of New York, and for many years a practitioner of Staten Island, visiting physician to St Vincent's Hospital, Manhattan, died at his home in Fort Wadsworth, Staten Island, August 16

William L Jerkins, M D, Moultrie, Ga, Atlanta (Ga) Medical College, 1893, aged 46, formerly a Fellow of the American Medical Association, a member of the Medical Association of Georgia, and once president of the Colquitt County Medical Society, a specialist in diseases of the eye and ear, died at his home, August 8

A M Curtis, M D, Waco, Texas, Atlanta (Ga) Medical College, 1875, aged 65, a member of the State Medical Association of Texas, vice president of the National City Bank, Waco, Texas Life Insurance Company, and Texas Saving-Loan Company, owner of the Curtis' Sanitarium, Waco, died in that institution, August 10

James Clark Earle, M.D., Olean, N. Y.; University of Buffalo, N. Y., 1887; aged 51; at one time chief surgeon of the Northern Division of the Pennsylvania System and a member of the city council; died at his home, August 7.

Thomas Edward Callahan, M.D., Saguache, Colo.; Maryland Medical College, Baltimore, 1904; aged 43; a member of the Colorado State Medical Society; was shot and instantly killed in a fight in a saloon at Ortiz, N. M., August 11.

Jesse Barr Webb, M.D., Lodi, Va.; University of the South, Sewanee, Tenn., 1907; aged 39; formerly a member of the Medical Society of Virginia; died suddenly about August 7, while making a professional call in Abingdon, Va.

Arthur J. Davkin, M.D., Wadsworth, Ohio; Western Reserve University, Cleveland, 1889; aged 50; a lecturer in his alma mater and for many years a practitioner of Cleveland; died at his home, August 3, from pneumonia.

Edward Anderson, M.D., Rockville, Md.; University of Maryland, Baltimore, 1875; aged 76; a Fellow of the American Medical Association and physician to the Montgomery County Alms House; died at his home, August 15.

Henry K. Neill, M.D., Richfield, Utah; University of Glasgow, Scotland, 1880; aged 61; formerly a member of the Utah State Medical Association; also a druggist; died at his home, August 6, from malignant disease.

Isidore Hermanigilde Chicoine, M.D., Lynn, Mass.; Harvard Medical School, 1894; aged 52; a member of the Massachusetts Medical Society; a member of the staff of the Lynn Hospital; died recently at his home.

Thomas A. Chappell, M.D., Jacksonville, Fla.; Savannah (Ga.) Medical College, 1869; aged 72; a Confederate veteran; died at St. Luke's Hospital, Jacksonville, July 27, from cerebral hemorrhage.

Kate S. Trainor Kavanaugh, M.D., Minneapolis; Hahnemann Medical College, Chicago, 1891; aged 63; a member of the Minnesota State Medical Association; died at her home, August 16.

Wilson Saffin, M.D., Cincinnati; Medical College of Ohio, Cincinnati, 1880; aged 58; formerly a Fellow of the American Medical Association; died at his home, August 19.

Isaac A. Roseberry, Independence, Ind. (license, Indiana, 1897); aged 84; village physician of Independence since 1855; died at his home, August 2, from cerebral hemorrhage.

William M. Beaver, Colby, Kan. (license, Kansas, 1901); aged 72; formerly a member of the Kansas Medical Society; a practitioner since 1869; died at his home, August 8.

Walter Scott Mason, M.D., Cedar Point, Kan.; Rush Medical College, 1880; aged 67; died on his ranch south of Cedar Point, Kan., August 7, from cerebral hemorrhage.

Scott T. Lameroux, Indianapolis (license, Indiana, 1901); aged 70; died in the hospital of the Indiana State Soldiers' Home, Lafayette, June 7, from facial erysipelas.

John Thomas Hiatt, M.D., Asheville, N. C.; Atlantic College of Physicians and Surgeons, Atlanta, Ga., 1901; aged 50; died at his home, May 29, from nephritis.

John West Oldshue, M.D., Pittsburgh; Philadelphia University of Medicine and Surgery, 1881; aged 69; died in St. Francis' Hospital, Pittsburgh, August 9.

William Thomas Batterson, M.D., Springfield, Ohio; University of Michigan, Ann Arbor, 1880; aged 60; died in the City Hospital, Springfield, August 10.

Charles David De Frantz, M.D., Denver; Meharry Medical College, Nashville, Tenn., 1905; aged 41; a colored practitioner; died at his home, July 26.

David Henry Stern, M.D., Chicago; Eclectic Medical College of the State of New York, 1892; aged 71; died at his home in Chicago, August 24.

Caleb Barker, Jr., M.D., New Rochelle, N. Y.; New York Homeopathic Medical College, New York, 1901; aged 39; died at his home, August 1.

Elbert Clarence Drake, M.D., Brooklyn; New York University, New York, 1876; aged 70; died at his home, August 2, from nephritis.

Thomas L. Anderson, McAlester, Okla. (license, Oklahoma, 1908); aged 39; a colored practitioner; died at his home, August 3.

Warren A. Maxfield, M.D., Hudsonville, Mich.; Rush Medical College, 1896; died at his home, July 31.

Richard Sobey, Chicago (license, Illinois, 1895); died at his home, July 31.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

CHAMLEY IS STILL LOOSE

S. R. Chamley—sometimes he spells his name "Chamlee"—is a resident of Los Angeles. Chamley is the "cancer cure" quack who frightens impressionable women into the belief that "any lump in woman's breast is cancer." He has been swindling the sick for years. In December, 1909, while living at St. Louis but also operating from Los Angeles, a fraud-order was issued against him under his various names applying both to his St. Louis and to his Los Angeles offices. Then Chamley changed the name of his concern to "St. Louis Sanitarium" using a postoffice box; in January, 1910, the fraud-order was extended to cover this new name. Chamley transferred his swindle to Oakland, Calif., and some weeks later the fraud-order was still further extended to cover the Oakland address. He opened offices in St. Louis and Los Angeles under still another name—the "United Specialists Cancer Cure Company"—and the federal authorities in February, 1910, denied these the use of the mails.

In March, 1910, the fraud-orders were revoked in so far as they affected Chamley's personal names, the quack having agreed to go out of the "cancer cure" business and having filed an affidavit to this effect with the federal authorities. His oath, as might have been expected, was as worthless as his business is villainous. THE JOURNAL in August, 1915, called attention to the fact that Chamley was sending out letters to physicians offering to sell for $20 full instructions that would enable physicians to carry out the same cruel swindles that he himself had waxed rich on. Also he was boldly advertising his fraudulent cancer cure in over a hundred newspapers. About the same time Chamley was indicted by a grand jury at San Francisco for obtaining property under false pretenses. From the newspaper reports it seems that he frightened a woman into believing she had cancer and then obtained a promissory note for $2,000 for an "operation" which he persuaded the woman he would have to perform. After the victim had paid $1,500 on the note, the quack, it appears, told her she must be operated on again and he demanded more money. Two women who acted as nurses for Chamley are said to have testified before the grand jury that Chamley admitted that he knew the woman had no cancer but that he meant to get all the money he could.

The federal officials again took action and still another fraud-order was issued against Chamley. At that time Judge W. H. Lamar, solicitor for the Post Office Department, in his memorandum to the Postmaster-General, scathingly summarized the case against Chamley thus:

> "It may be said that the business of Dr. Chamley, contemplating as it does the extortion of money for a worthless and often harmful 'treatment' through a deliberate propaganda of terror among impressionable women by means of the cancer advertisements and other literature referred to above, is one of the most vicious which has ever been before this office, and constitutes a more sinister parasite on the community than the dread disease which Dr. Chamley offers to 'cure.'"

This was in April, 1916. In April, 1917, Chamley was fined $100 and given a suspended sentence of 100 days in the city jail for practicing medicine without a license. We are now in possession of a circular letter, signed S. R. Chamley and addressed to homeopaths and eclectics. We quote the first four paragraphs of the letter:

> "I find your name in the Directory as a Homeopath or Eclectic and want to inform you that I have opened a little HOMEOPATHIC AND ECLECTIC CANCER COLLEGE (never for alapaths) [*sic!*]. I want to beg you to attend or at least visit us so that I may show you the need of more cancer specialists.
>
> "I charge only $20.00 for a course of instructions, demonstrations and clinics, including the book containing all the formulas for killing

and curing cancers with what we claim is the best ESCHAROTIC ever discovered It is the nearest painless and most efficient

"If you will advertise in a way that will teach and warn the people to not neglect lumps and sores, I will come to your office, start your advertising and pay for it myself out of my own money to the amount of $50 00 and stay in your office and teach you, if you give me all that comes in from cancer patients

"At the end of two, three or four weeks, I quit and leave you to pay your own advertising and make all you can I would visit you again when I could I am traveling this way nearly all the time in Southern California but will give a course of lectures here in the college till of October as I want to be in the Billy Sunday meetings nights You need to stay only two or three days"

The rest of the letter is largely devoted to flings at the Post Office Department and at other officials that have been responsible for curbing Chamley's damnable activities One paragraph, however, stands out in bold capitals

"I WANT THREE OR FOUR HOMEOPATHIC OR ECLECTIC PHYSICIANS TO START OTHER OFFICES FOR ME BUT THEY MUST BE GRAY, FINE APPEARING BUSINESS MEN"

It will be noticed that Chamley insists on three essentials for those who would start offices to perpetuate his wretched business First, that the men must be either "homeopathic or eclectic physicians", a proper rebuke for this implied insult may safely be left to the decent representatives of these two schools Second, that the men "must be gray", this of course, is to enable them to put up the proper "front" and to convey the idea that they have grown venerable in the practice of their "specialty" The third is that they must be "business men," which means, in the vocabulary of the quack, that they will have no foolish professional prejudices against frightening women who have some simple, benign tumor into the belief that they have carcinoma and, having thus frightened them, will not be above robbing them of all the money they are able to get their hands on For the purpose of still further defeating the ends of justice Chamley warns those to whom he writes that they should not address mail to him but to "Homeopathic Cancer College, 751 S Main St., Los Angeles"

Chamley is a versatile and long-lived scoundrel We have in our files copies of much of the evidence taken when Chamley was under investigation in St Louis in 1909 The damning facts there brought out make a well-nigh unbelievable story of cupidity, ignorance and cruelty Yet in all the years that Chamley has been able to pursue his villainous trade he seems, by some means or another, to have kept out of the penitentiary Why, we do not know Common justice and a decent regard for the public safety alike would seem to demand that he be sent there

SOME MISCELLANEOUS NOSTRUMS

Bon-Opto—This "eye medicine," put on the market by the Valmas Drug Company, Detroit, is sold under the claim that it will "Make Weak Eyes Strong" and that it "Strengthens Eyesight 50 Per Cent in One Week's Time in Many Instances" The testimonial type of advertising is, of course, employed A man, "almost blind," used Bon-Opto and now "can read everything", a woman to whom "the trees across the street" were for several years but "a dim green blur," was able to "count the fluttering leaves" after using Bon-Opto! Physicians—"prominent," of course—whose initials are unfortunately omitted, are quoted as testifying enthusiastically regarding the virtues of Bon-Opto Two of these noted individuals are quoted at length in a French-Canadian paper One of them is "Le Dr Beck, un specialiste pour la vue, de New-York" while another is "Le Dr Judkins, medecin de Massachusetts, autrefois chef de chimique au Union General Hospital, Boston, Mass, anciennement chirurgien interne a la New-England Eye and Ear Infirmary de Portland, Maine, et auteur medical" Then in the papers in the United States there are testimonials from Drs Smith, Connor and Lewis whose initials, curiously enough, the Valmas Drug Co also fails to give In soliciting druggists to carry their nostrum, the Bon-Opto concern perpetrates a joke that is as impudent as it is humorous In a letter addressed to the druggist they give what purports to be the ingredients of the nostrum but carefully abstain from giving any quantities so that the alleged formula is meaningless. The opening paragraph of one of these letters reads

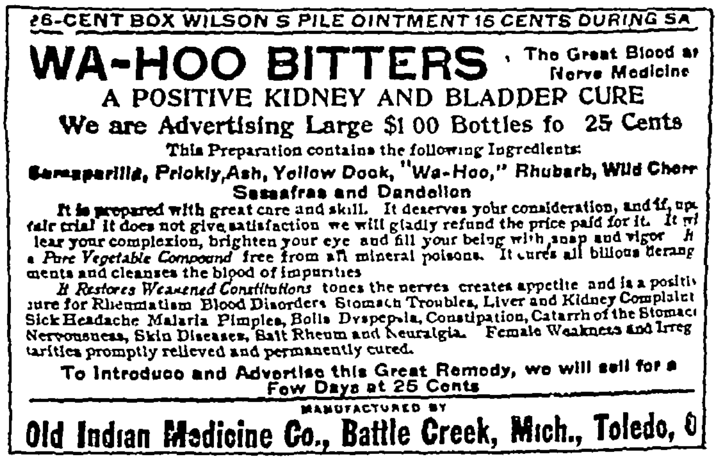
"Conscientious, careful druggists who refuse to recommend any remedy unless they know what is in it will appreciate the following formula of Bon Opto for the eyes and the fact that we make no secret of it but print it on every package

Chloretone	Boric Acid
Zinc Sulphate	Menthe Poivree
Sodium Chloride	Camphre de Menthe"

Just what "*Menthe Poivree*" and "*Camphre de Menthe*" are is not disclosed but they may be counted on to add to the mystery which must envelope the average "patent medicine" if it is to become a commercial success Yet the Bon-Opto concern has the effrontery to say in its letter "As a qualified druggist you will immediately recognize its great therapeutic value"! In the newspaper advertisements the public is assured "Bon-Opto is not a patent medicine or secret remedy" The facts are Bon-Opto *is* a secret remedy and is just as much a "patent medicine" as "Peruna" or "Paine's Celery Compound" In fact, the latter nostrums, thanks to the requirements of the federal law, give the quantitative formula of at least one of their ingredients, which is more than can be said for Bon-Opto The state chemists of New Hampshire in their bulletin for 1917 state that Bon-Opto contains

Sodium Chlorid (common salt)	39 52
Zinc Sulphate (white vitriol)	6 83
Boric Acid	39 69
Menthol	a small amount

Wilson's Wa-Hoo Bitters—Charles Kent Wilson of Toledo, Ohio, who did business under the trade name Old Indian Medicine Company, Battle Creek, Mich, and Toledo, Ohio, manufactured and sold "C K Wilson's Original Wa-Hoo Bitters" This was sold as a "Great Blood and Nerve Tonic" and as an unfailing specific for partial paralysis, St Vitus' Dance and all forms of weakness, as well as an effective remedy for malaria, catarrh of the stomach, salt rheum, scrofula and neuralgia The chemists of the Bureau reported that the product was a watery solution (slightly sweetened) of Epsom salt, salicylic acid and a laxative plant drug with indications of sassafras, gentian and prickly ash The therapeutic claims were declared recklessly and wantonly false and fraudulent Wilson pleaded guilty and was fined $25 and costs—[*Notice of Jugment No 4523*]



26-CENT BOX WILSON S PILE OINTMENT 16 CENTS DURING SA

WA-HOO BITTERS, The Great Blood a Nerve Medicine

A POSITIVE KIDNEY AND BLADDER CURE

We are Advertising Large $1 00 Bottles fo 25 Cents

This Preparation contains the following Ingredients:

Sarsaparilla, Prickly Ash, Yellow Dock, "Wa-Hoo," Rhubarb, Wild Cherr Sassafras and Dandelion

It is prepared with great care and skill. It deserves your consideration, and if, up fair trial it does not give satisfaction we will gladly refund the price paid for it. It wi lear your complexion, brighten your eye and fill your being with snap and vigor It a *Pure Vegetable Compound* free from all mineral poisons. It cures all bilious derang ments and cleanses the blood of impurities

It Restores Weakened Constitutions tones the nerves creates appetite and is a positi cure for Rheumatism Blood Disorders Stomach Troubles, Liver and Kidney Complaint Sick Headache Malaria Pimples, Boils Dyspepsia, Constipation, Catarrh of the Stomac Nervousness, Skin Diseases, Salt Rheum and Neuralgia. Female Weakness and Irreg larities promptly relieved and permanently cured.

To Introduce and Advertise this Great Remedy, we will sell for a Few Days at 25 Cents

MANUFACTURED BY

Old Indian Medicine Co., Battle Creek, Mich., Toledo, O

Italian "Index Medicus"—The bacteriologic laboratory of the Italian Public Health Service has just published the first annual volume of the "Annuario bibliografico italiano delle scienze mediche ed affini" It contains in alphabetical sequence the titles of all the works on medical and allied subjects that appeared in Italian periodicals in 1916 It thus covers 100 journals, nearly all medical, with some of more general scope, but with articles that bear on medical topics It forms a small volume of 382 pages Professor Gosio is in charge of the undertaking, as well as of the bacteriologic laboratory

Correspondence

"PATRIOTISM RAMPANT"

To the Editor —Referring to your comment (The Journal, Aug 18 1917, p 570) criticizing the Michigan State Board of Registration in Medicine for its action concerning German as an entrance requirement—an expression which has already received the approbation of the *Detroiter Abend Post*—permit me to refer to the dictum of the German philosopher, Eucken who with characteristic Prussian arrogance has declared that the spread of German Kultur is necessary to the "spiritual preservation of mankind" Action on the part of other boards in the United States similar to that of the Michigan state board might furnish an interesting test case as to whether it is practically indispensable

Personally I am inclined to concur in the long ago quoted opinion of Osler to the effect that international science has been annihilated for this generation through the justification on the part of the doctors of letters of Germany of the abominations of the kaiser and his assistant assassins Truth may lie between the extremes of Eucken and Osler, but this country has apparently already had quite enough of the activities of Münsterberg (who though dead, yet speaketh), Dernburg and the Borussen Gesellschaft

In dealing with the dissension- and disloyalty-breeding German element in this country sentimental considerations need not obtain Expediency should govern Concerning the debatable question of the expediency of a particular act I desire to speak out plainly my own conviction that the time has come to set a back-fire Kindliness and tolerance should be reciprocal and this is impossible because the American Kaiserite and the one hundred per cent American have nothing in common C. B Burr M D, Flint, Mich

THE RUSSELL EMULSION AND THE RUSSELL PREPARED GREEN BONE

To the Editor —In the issue of The Journal of the American Medical Association of June 23 1917, under the heading, "The Propaganda for Reform," you publish certain data, said to be a "Report of the Council on Pharmacy and Chemistry" relating to products manufactured by us We did not request you to report on these products or to admit them to "New and Nonofficial Remedies" Please state therefore your authority for so doing

Standard Emulsion Company New York

[Comment —The "certain data" referred to above is a report of the Council on Pharmacy and Chemistry on the "Russell Emulsion" and the Russell Prepared Green Bone" The report criticized the absurdity of the claims made for these products and declared that the products themselves were inadmissible to New and Nonofficial Remedies The Journal *nowhere stated, either directly or by inference,* that the Standard Emulsion Company had requested that a report be made on its products or that they be admitted to New and Nonofficial Remedies Those of our readers who may have overlooked this article can obtain a reprint of it by sending a 2-cent stamp and a request for the reprint.—Ed]

IMMEDIATE ACTION BY CONSCRIPTED MEDICAL STUDENTS

To the Editor —The exemption of medical students until the completion of their course has become a question of national importance, and at the same time the probability of such exemption has become so slight as to be almost negligible Something must be done by the student body itself, and that must be done quickly

Without question the authorities have thus far shown themselves rather near-sighted in regard to this question. Just as a near-sighted person can best perceive an object properly when that object is brought close to his eyes, so would our authorities best see this question in its true light, if it were persistently and very closely brought to their attention My suggestion is this

Let not the conscripted students wait passively for action from Washington Let each one immediately file claim for discharge at his district board on industrial grounds (Forms 161 and 161a modified for the purpose of medical students) These claims will probably be denied Then let each one immediately file an appeal to the President of the United States

Several thousand such appeals directly to the President must without question, have the effect of stimulating the required action favorably It must be remembered that most medical schools begin not later than October 1 Delayed action, even if favorable, will result in much confusion and derangement Isadore Sandock, South Bend, Ind

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address but these will be omitted on request.

WORKS ON MEDICAL GERMAN

To the Editor —Will you give me the name of a small, compact work on medical German? I have a considerable number of patients of German origin many of whom speak but little English, while, on the other hand I speak practically no German What I want is a pocket size German vocabulary reference work of the most commonly used medical words so that in odd moments I may increase my German vocabulary and thus be enabled to better understand the ailments of my patients — —, M D Bismarck, N D

Answer.—

Lewis Medical Vademecum in German and English Philadelphia, P Blakiston's Sons & Co $5 (Twenty five clinical lectures German and English *in parallel columns*)
Deutsch Medical German New York J H Vail & Co $1 75
Lewin German English Medical Dialogue, published by Klinkhardt, Leipzig

THE PRONE POSITION

To the Editor —Dr L. J Ladinski (The Journal, Aug 25, 1917 p 634) says he places his patients in the prone position when about to operate for ectopic gestation May I inquire why? I never knew of this posture being used

H D Fair M D Muncie Ind

Answer.—This misuse of the word "prone" should have been corrected by our manuscript editors but was not. This usage is a common error It would be rather difficult to operate on the abdomen with the patient in the prone position unless the operator was under the table "Prone" means "lying face downward, stretched at full length on the belly" as the Century Dictionary puts it

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Health Department to Treat Drug Habitués—Plans have been perfected by Health Commissioner Emerson of New York City whereby drug addicts wishing to be cured of their habit may apply to the department of health for treatment in one of the city institutions Any local health board may receive the voluntary application of such addicts and many commit them to a *hospital for treatment* Other city departments have assured the health department of their cooperation The commissioner of corrections has placed several hundred beds in the Corrective Hospital at the disposal of the department of health for this purpose. Similar cooperation will be afforded by the department of charities, Bellevue and Allied hospitals and the board of inebriety *The department of* health will also examine and, if necessary will prescribe or dispense narcotic drugs to addicts appealing to the department, provided such prescriptions or *administration is* necessary to protect their lives and the public safety In no instance however, will the department administer such drugs excepting in an emergency pending the admission of such drug addicts to an institution or pending their treatment by a physician

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska Juneau, Sept 4 Sec, Dr S P Dawes, Juneau

Arizona Phoenix, Oct 2 3 Sec, Dr John Wix Thomas, 306 Goodrich Bldg, Phoenix

California Los Angeles, Oct 9 13 Secretary, Dr Charles B Pinkham, State Capitol, Sacramento

Colorado Denver, Oct 2 Sec, Dr David A Strickler, 612 Empire Bldg, Denver

District of Columbia Washington, Oct 9 11 Sec, Dr Edgar P Copeland, The Rockingham, Washington, D C

Georgia Atlanta, Oct 9 11 Sec, Dr C T Nolan, Marietta Ga

Hawaii Honolulu, Sept 10 13 Chairman, R W Benz, 1141 Alakea St, Honolulu

Idaho Pocatello, Oct 2 Sec, Dr Charles A Dettman Burke

Illinois Chicago, Oct 9 11 Superintendent of Registration, Mr F C Dodds, Springfield

Iowa Des Moines, Oct 9 11 Sec, Dr G H Sumner, State House, Des Moines

Massachusetts Boston, Sept 11 13 Sec, Dr Walter P Bowers, Room 501, No 1 Beacon St, Boston

Michigan Lansing, Oct 9 11 Sec, Dr B D Harison, 504 Washington Arcade Detroit

Minnesota Minneapolis, Oct 2 5 Sec, Dr Thomas S McDavitt, Lowry Bldg, St Paul

Montana Helena, Oct 2 Sec, Dr William C Riddell, Power Bldg, Helena

National Board of Medical Examiners Chicago, Oct 10 18 Sec, Dr J S Rodman, 2106 Walnut St Philadelphia

New Jersey Trenton, Oct 16 17 Sec, Dr Alexander MacAlister, 438 E State St, Trenton

New Mexico Santa Fe, Oct 8 Sec., Dr R K. McClanahan, East Las Vegas

New York Albany, Buffalo, New York City and Syracuse Oct 2 5 Chief, Examinations Division, Harlan S Horner, State Education Bldg, Albany

Oklahoma Oklahoma City, Oct 9 10 Sec., Dr Ralph V Smith, 502 Daniel Bldg, Tulsa

Porto Rico San Juan, Oct 2 Sec, Dr M Quevedo Baez, San Juan

Rhode Island Providence, Oct 4 5 Sec, Dr Byron O Richards, State House Providence

Utah Salt Lake City, Oct 1 2 Sec, Dr G F Harding, Templeton Bldg, Salt Lake City

Medicolegal

Annulment of Marriage for Fraudulently Concealed Epilepsy

(McGill vs McGill (N Y), 163 N Y Supp 462)

A special term of the Supreme Court of New York, Onondaga County, holds that the plaintiff was entitled to the marriage annulment which he sought on the ground that he was induced to enter into the marriage contract by the defendant's concealing from him that she was an epileptic, and in leading him to believe, through statements to that effect, that she was in good health The court says the parties were married, March 9, 1912 The plaintiff testified that the first time he knew that his wife had epilepsy was Dec 12, 1912, when he was so informed by a physician, that after that time he did not cohabit with the defendant, that he continued to live with her and slept in the same room, as there were only two rooms in the apartments, and he continued to care for her until she went to the Craig Colony, April 15, 1915 It was true that there were rumors that the defendant was subject to epileptic seizures, but the plaintiff was assured by her that this was not so, and the evidence of the conversations had with her and her aunt, with whom she lived, and a visit to a physician, all pointed to the conclusion that it was the defendant's purpose, in which she succeeded, to deceive the plaintiff as to her actual condition, that after the marriage she had, from time to time, attacks which probably were epileptic seizures, and he procured at different places at which they resided and at different times the best medical advice that he could afford, and that to him was attainable, and that none of these men, until December, told him that she was subject to epileptic seizures The plaintiff testified on cross-examination that prior to that time he thought the convulsions which the defendant had were hysterical With reference to what occurred after the marriage to call his attention to the disease from which his wife was suffering, the court must not be too strict in extending the doctrine of constructive notice to the case of a lover zealously courting the woman of his choice, or to an anxious husband earnestly seeking to ascertain the cause of his wife's illness and to cure it. With reference to the claim that he cohabited with his wife after the discovery in December, 1912, that she had epileptic seizures, no question of construction was involved, for the court has no hesitation in finding that he did not cohabit with her at all He cared for her as well as his circumstances permitted, and procured, as soon as he could, her commitment to a proper institution for treatment He was under no legal duty to abandon her, but was under the legal duty of caring for her until such a time as that duty should be terminated by the action of a court of equity In arriving at the conclusion that a court of equity should annul the marriage, the court has in mind that fortunately there were no children The court believes that the safeguards the law has thrown around the marriage relation do not demand that this unfortunate defendant should be permitted, by her misfortune and misrepresentations and concealments, to drag down the life of the plaintiff, which was full of promise, especially when such a union, at best, would be childless, and, at worst, would produce a progeny of potential epileptics, over whose lives heredity would cast its dark shadow, which would extend even across the lives of their descendants

Negligent Anchoring of Drainage Tube

(Talley vs Whitlock (Ala), 73 So R 976)

The Supreme Court of Alabama affirms a judgment in favor of plaintiff Whitlock, and denies defendant Talley a rehearing, in this action for the alleged negligent anchoring of a drainage tube placed in an incision made in the plaintiff's chest wall The court says that the averment of negligence in the one count of the complaint on which the trial was had was that the defendant was a practicing physician and surgeon and as such undertook to perform a surgical operation on the plaintiff and to leave in the wound or cut made by said surgical operation a drainage tube, and that the defendant so negligently or unskilfully conducted himself in that regard that as a proximate consequence of said negligence said drainage tube became or was misplaced in the plaintiff's body and remained so misplaced for a long time, etc It is held that the complaint was not subject to demurrer for the generality of its averment of negligence It has been repeatedly ruled by this court that, where the facts stated in the complaint are sufficient to show the duty, and that the defendant negligently failed to do or perform this duty, it is not necessary to define the quo modo (the way) or to specify the particular acts of diligence that should have been employed in the performance of such duty A civil action for malpractice against a physician and surgeon may be sustained, on proof of a failure to exercise such reasonable and ordinary care, diligence, and skill in respect to the duty so assumed and undertaken as physician and surgeon, such care and skill as physicians and surgeons in the same general neighborhood, pursuing the same general line of practice, ordinarily employ and exercise in a like case But there is no rule of responsibility which requires of the physician or surgeon infallibility in the diagnosis or treatment of disease Statements by the surgeon who subsequently removed the tube and by another surgeon who assisted him, as to the condition of the tube when taken from plaintiff's body, as that there was no attachment to the tube and no sign of any hole, etc, were admissible in evidence The observed data were for the jury's consideration Nor was there any error in a charge the effect of which, under the evidence, was to instruct the jury that, even though the defendant may have used the best method of anchoring the drainage tube in the first instance yet he would be responsible for his negligent failure to exercise the reasonable and ordinary care, skill and diligence required of surgeons in the same general neighborhood, in doing the same service, that is, placing the drainage tube, as well as anchoring it, after the "best method" If the method of anchoring the tube was the best, but the defendant was negligent in the execution of that method, he would nevertheless be liable under the averment of negligence of the count, where after showing his duty as operating surgeon it was averred that the defendant so negligently and unskilfully conducted himself in that regard that, as a proximate consequence of said negligence said drainage tube became or was misplaced in the plaintiff's body" etc. The defendant might have put the tube in the proper place and yet negligently secured it therein The defendant asked that the jury be instructed that if it believed from the evidence that the drainage tube was misplaced in the wound or cut while the same was being dressed by the resident physician at the hospital or after the plaintiff was removed from the hospital a verdict should be returned for the defendant This instruction was properly refused for the reason that it predicated the alleged misplacement to the resident physician at the hospital and pretermitted inquiry of the proper placement and securing of the tube in the first instance by the defendant The subsequent act of another was no defense for any negligence chargeable to the defendant unless that act of that other was the sole proximate cause of the injury complained of

Coastwise Vessels Not Required to Have Physicians

(The City of St Louis (U S), 238 Fed R 81)

The United States District Court Southern District of New York says that the party by whom this suit was brought fell from an upper berth and sprained her ankle The injury was treated by the ship's steward It was contended that while there is no federal statute requiring a coastwise vessel to have a physician or surgeon on board it still would be required under the obligations resting on it as a common carrier under the common law to carry a physician In support of this contention authorities were quoted to the effect that the rule may be stated to be that a carrier is bound to exercise the strictest vigilance in receiving a passenger, conveying him to his destination and setting him down safely The gist of an action against a carrier of passengers for injuries sustained is the breach of the duty imposed on it by law to carry safely, so far as human skill and foresight can go the persons it undertakes to carry But these authorities had no application to the issue in this case They clearly refer only to the degree of care as against physical injuries and do not impose a duty to provide medical skill in the event injuries are sustained The party by whom this suit was brought if she could recover, could do so only on the ground of negligent conduct on the part of the steward in treating the injured member However he acted in a reasonably prudent manner, applied standard remedies, and, so far as disclosure was made by the evidence, did all that a reasonably prudent man could have done under the circumstances He was not a physician, but he did, on behalf of the ship render such first aid as was necessary to any person injured Hence the suit is dismissed

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Society Proceedings

COMING MEETINGS

Amer Acad of Ophthal and Oto Laryng Pittsburgh Oct 29 30
Am. Assn Obstetricians and Gynecologists Newark N J Sept. 17 19
American Association of Railway Surgeons Chicago Oct. 17 19
American Electro Therapeutic Association Atlantic City Sept 11 13
American Roentgen Ray Society New York, Sept. 20 22
Colorado State Medical Society Colorado Springs Sept. 25 27
Delaware State Medical Society Middletown Oct 8 9
Indiana State Medical Association Evansville Sept. 26 28
Kentucky State Medical Association Louisville, Oct. 16 18
Medical Association of the Southwest Kansas City Oct. 15 17
Michigan State Medical Society Battle Creek Sept. 4 6
Minnesota State Medical Association St Paul Oct. 10-12
Mississippi Valley Medical Association Toledo O Oct 9 11
Missouri Valley Medical Society Lincoln Neb Sept. 20-21
Nevada State Medical Association Reno Oct 18 19
New Mexico Medical Society Las Cruces Oct. 4-6
Pennsylvania State Medical Society Pittsburgh Sept 24-27
Utah State Medical Association Salt Lake City Sept 12 13
Vermont State Medical Society Barre Oct. 11 12
Virginia State Medical Society Roanoke Oct 23 26
West Virginia State Medical Association Fairmont Oct 2-4
Wisconsin State Medical Society Milwaukee, Oct. 3 5

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Insanity, Baltimore

July LXXIV No 1

1 Recent Trends in Psychiatry C G Wagner, Bingham N Y —p 1
2 Nature and Function of Neuroglia C Ricksher, Kankakee, Ill —p 15
3 *Relationship Between Syphilis of Nervous System and Psychoses Analysis of Cases Showing Divergence in Clinical and Serologic Pictures L C Lowrey, Boston —p 25
4 *Diagnostic Value of Spinal Fluid and Wassermann Tests in Psychiatry F W Fell Elgin Ill —p 41
5 Paranoid Types in Syphilitic Disease of Central Nervous System F M Auer Indianapolis —p 53
6 Ephebic Psychosis A B Evarts Washington, D C —p 61
7 Criminal Insane and Insane Criminals P E Bowers, Michigan City Ind —p 77
8 Cranial Asymmetry H M Adler Chicago —p 89

3 **Relationship Between Syphilis of Nervous System and Psychoses**—Of about 2 500 cases examined in the last three years Lowrey finds eleven sufficiently unusual to be reported Of these four had clinical pictures of dementia praecox, one of constitutional inferiority and one imbecility, two organic and three paresis In two cases of dementia praecox, the serology of neurosyphilis was found early, in the other two only after many years in all four it was not expected One patient has tabetic symptoms the others no symptoms of neurosyphilis The patient with tabetic symptoms also exhibits catatonic symptoms One 'hysterical" or "constitutionally inferior' person developed secondary syphilis five years before death A year before death, the serology of neurosyphilis was demonstrated Necropsy confirmed this No clinical symptoms An 'imbecile' developed genuine paresis in the hospital Necropsy and serology typical An organic case without signs of paresis gives the serology of it A case clinically Huntington's chorea, gives the serology of paresis without clinical signs of it. One case, clinically paresis at first seems now like dementia praecox Serology positive One case clinically paresis has run an extremely long stationary course Wassermann negative in blood and fluid, other tests positive One case, clinically and serologically paresis has as the most prominent symptom, and the only one at the present time, auditory hallucinations Lowrey says that these are cases with (*a*) neurosyphilis in unusual causal relationships or (*b*) coincident psychoses and symptomless neurosyphilis He advises that diagnoses should be based on both clinical and laboratory findings

4 **Diagnostic Value of Spinal Fluid and Wassermann Tests in Psychiatry**—At Elgin State Hospital, 500 patients in whom paresis was for one reason or another suspected, have been given serum and fluid Wassermann tests, globulin tests and cell counts Of these 215 were syphilitic psychoses and 285 nonsyphilitic psychoses The gold chlorid test was not used In cases of taboparesis and cerebrospinal syphilis the findings were less constant than in paresis In paresis the tests failed in establishing the existence of paresis as follows globulin increase 2 per cent. pleocytosis 10 5 per cent serum Wassermann 7 per cent., fluid Wassermann 4 per cent. In the nonsyphilitic psychoses the tests were positive as follows globulin increase 5 5 per cent, pleocytosis 3 5 per cent serum Wassermann 9 5 per cent, fluid Wassermann none Cell and globulin increase in nonsyphilitic psychoses was found especially in organic cases where a differentiation was important. There is abundant evidence that positive fluid findings may occur without paresis in the primary and secondary stages and it is probable that they occur without the mental symptoms of paresis in the "prepsychotic' stage It is not argued by Fell that a positive spinal fluid Wassermann is of itself conclusive evidence of paresis, nor that a negative test excludes paresis, but it is so constantly positive in the one and negative in the other that it is of the greatest value, in a case where a differentiation must be made, in distinguishing between a syphilitic and a nonsyphilitic psychosis Fell found that the extent of the paretic process cannot be deter

mined with any degree of accuracy by laboratory tests, it can only be said in a general way that globulin and cell increase seem more marked in the more rapid cases The distinction between a paretic process and a tertiary syphilitic process, or the extent to which each is present, cannot be determined in the laboratory The gold chlorid test is of some help in this direction but the therapeutic test is the only one of much value The diagnosis of the combination of paresis with a functional psychosis should be made with extreme caution In making a diagnosis of recovery in a case of paresis which has cleared mentally the following conditions should be considered 1 A functional psychosis in the primary or secondary stages of syphilis 2 A functional psychosis in the "prepsychotic" stage of paresis 3 A remission in paresis The first two occur quite infrequently, the last very frequently, the spinal fluid findings remaining positive

American Journal of Medical Sciences, Philadelphia

August, CLIV No 2

9 *Etiology of Sprue B K Ashford —p 157
10 *Toxins and Serologic Reactions in Sprue C Michel, San Juan —p 177
11 *Disinfection of Drinking Water H D Dakin and E K Dunham, New York —p 181
12 Indications for and Dangers of Tonsillectomy G B Wood Philadelphia —p 188
13 Achylia Gastrica M H Gross and I W Held, New York —p 196
14 Indications for Blood Transfusion G M Dorrance, Philadelphia —p 216
15 *Diabetes Insipidus, Report of Case J H Barach, Pittsburgh —p 220
16 *Metastasis of Tumors D Symmers, Bronxville, N Y —p 225
17 *Differential Diagnosis of Mediastinal Conditions A McN Blair, Southern Pines, N C —p 240
18 Significance of Ureteral Tubercle Bacilluria E Beer, New York —p 251
19 *Albuminuria and Hematuria Following the Administration of Hexamethylenamin J R Wiseman —p 264
20 Tuberculous Peritonitis B Z Cashman, Pittsburgh —p 269

9 **Etiology of Sprue**—The object of this paper is to demonstrate that the species of Monilia first described by Ashford in March, 1915, is the determining etiologic factor in sprue, and to suggest that this species be recognized as Monilia psilosis, Ashford, 1914 A summary is given of a study of 100 persons examined clinically, mycologically and serologically for sprue Sixty-seven were suffering from or had suffered from clinical sprue, and one was either a carrier or had mild sprue Thirty-two were healthy or were suffering from other diseases than sprue In sixty-one of the sixty-eight sprue cases Monilia psilosis was isolated Of the seven in which it was not found, four had been cured for at least one or two years and gave only a 50 per cent. Wassermann positive for Monilia psilosis The other three were mild chronic cases, one with a + (25 per cent) Wassermann and the other two with a + reaction Seventy-one persons gave a positive deviation of the complement with an antigen of Monilia psilosis, all but one of the cases of clinical sprue and four not sprue—a case of pellagra, a case of nervous dyspepsia, a case of bacillary enterocolitis and one a healthy boy with an ulcer of the leg

10 **Toxins and Serologic Reactions in Sprue**—Out of over 400 tests made, including various diseases, all cases which were diagnosed clinical sprue and from which the Monilia psilosis was isolated from the tongue and feces, the complement-fixation test was positive The other Monilia antigens used have faintly positive results only in severe cases of sprue In these tests the results with other Monilia antigen was about 15 per cent positive, while the reaction with the psilosis antigen was 100 per cent positive This reaction varies with the condition of the patient In cases of chronic or latent sprue, and in cases which had recovered, the reaction tends to become negative In cases which had clinical syphilis and sprue, the fixation test for both these diseases was positive Guinea-pig serum of an animal which had been inoculated with a killed culture of Monilia psilosis gave a strong positive reaction The serum from animals which had been inoculated with live cultures or killed cultures of Monilia psilosis gave the same results as the serum of patients that have sprue, and from which the Monilia psilosis had been isolated from tongue and feces In view of these results and with Ashford's clinical and mycological work Michel says it is strongly evident that the Monilia psilosis of Ashford is the etiologic factor in sprue

11 Abstracted in The Journal, June 30, 1917, p 2008

15 **Diabetes Insipidus**—Barach reports a case of diabetes insipidus with kidneys capable of eliminating a normal amount of solids in the twenty-four hours In response to ingestion of added amounts of salt and urea the kidneys show ability to eliminate these substances promptly and to concentrate urine In response to the ingestion of a gram of glucose the urine showed a trace of sugar and a diuresis followed Phenolsulphonephthalein elimination was normal There were evidences in this case suggesting that the abnormally large liquid exchange was not limited to the kidneys but that the spinal fluid and saliva were likewise secreted in abnormally large amounts It was demonstrated that although the kidneys and salivary glands were already performing an inordinate amount of work, as far as excretion of water is concerned they were not functioning to their maximum capacity Pilocarpin produced a sialorrhea and diuresis after each dose on several days Circumstances did not permit any attempt at determining the part played by the internal secretions in this case, nor was it possible to make any observations toward determining the part played by the glossopharyngeal nerve in the polydipsia

16 **Metastasis of Tumors**—Among 5,155 necropsies at Bellevue Hospital in the past ten years there were 298 malignant tumors, 264, or 89 per cent, were of the epithelial or mesothelial variety, and 34, or 11 per cent, were sarcomatous or endotheliomatous Two hundred and twenty, or 74 per cent., had gone to the stage of metastasis, in 19 instances, or 7 per cent there was indirect invasion of neighboring tissues without attendant metastases in remote parts, and in 59 cases, or 19 per cent, the growths remained localized as follows epithelioma of the urinary bladder 7, of the tongue 4, of the cheek and bronchus 1 each, of the esophagus 7, carcinoma of the stomach 10, of the sigmoid 6, of the cecum 5, of the uterus 3, of the rectum, pancreas and liver 2 each, of the bile ducts and breast 1 each, sarcoma of the lung and osteosarcoma of the vertebrae 1 each, hypernephroma of the kidney 3, and of the suprarenal 1 The primary growths were distributed thus epithelioma of the esophagus 23, of the urinary bladder 12 of the tongue 5, of the branchial clefts, bronchi, skin and larynx 2 each, of the pharynx and penis 1 each, carcinoma of the stomach 84, of the gallbladder 16 of the prostate 12 of the bile ducts 6, of the cecum 10, of the duodenum 3 of the pancreas 10 of the uterus 11, of a salivary gland and the jejunum 1 each of unknown origin 2, hypernephroma of kidney 12, of suprarenals 3, lymphosarcoma of the retroperitoneal nodes 4 of the anterior mediastinal nodes 3, of the posterior mediastinal nodes 2, of the cervical nodes 2, of the gastro-intestinal lymphoid structures 2 of general distribution 1, sarcoma of the breast 1, of the retroperitoneal nodes and periosteum 2 each, of the humerus cervical nodes, sole of foot, thigh, mesenteric nodes, lung and kidney 1 each, osteosarcoma of right leg, left leg, vertebrae 1 each, multiple myelogenous sarcoma 2, melanoma 1 Of the 298 tumors the lymph nodes were metastasized 131 times, or in 44 per cent , the liver 102, or in 34 per cent , the pleura and lungs 73, or in 25 per cent , the bones in 35, or 17 per cent., the vertebrae, ribs, calvarium, sternum, femur, humerus, and pelvis being involved in the order named, the suprarenals were metastasized 23 times, or in 8 per cent , the kidney 17 times, or in 5 7 per cent , the spleen 16 times, or in 5 3 per cent , there was neoplasmic invasion of large veins in 13 cases, or in 4 7 per cent , the pancreas was metastasized 13 times or in 4.7 per cent , the heart muscle 9 and the skeletal muscles 3 times, or in 4 per cent , the ovary, mesentery, pericardium, and dura mater 7 times each, or in 2 per cent , the small intestine, stomach and scalp 3 times each, and the testicle and esophagus once each.

17 **Differential Diagnosis of Mediastinal Conditions**—The uniform method of checking all physical examinations of the chest in doubtful cases with the fluoroscope or Roentgen-ray plates is commended by Blair as the only means which will

lead to more accurate and early diagnosis of mediastinal conditions

19 **Albuminuria and Hematuria Following Administration of Hexamethylenamin**—A study of Wiseman's cases shows that the most important cause of albuminuria or hematuria following the administration of hexamethylenamin is abnormally high urinary acidity In four out of the five reported cases the acidity was above 100 in terms of decinormal sodium hydrate and in one case it reached 140 It is therefore necessary to carefully determine the urinary acidity of all patients who are taking hexamethylenamin If the acidity becomes too slow or disappears entirely the drug is inefficient whereas with a high degree of acidity irritative symptoms are likely to appear High dilution of the urine impairs the formaldehyd action concentration of the urine increases formaldehyd activity but favors unpleasant results

Boston Medical and Surgical Journal

August 9 CLXXVII No 6

21 Country Doctor and Hospital A W Faxon Stoughton—p 167
22 *Study of Urines of Picric Acid Workers F O West Woburn—p 171
23 Epidemic of Dysentery at Boston State Hospital Due to Member of Paratyphoid Enteritidis Group M E Morse and C Tryon Boston—p 173 (To be continued)
24 Year's Work with Wassermann Test in Boston Health Department Laboratory with Especial Reference to Doubtful Reaction F H Slack F Castleman and K R Bailey Boston—p 180

22 **Study of Urines of Picric Acid Workers**—The result of West's investigation tends to show that picric acid may be manufactured without great hazard to the employee provided the work is carried on under proper conditions and the men are subjected to rigid medical supervision Of eighty-six urines examined for the presence of albumin three gave the slightest possible trace at the end of employment whereas it was not detected at the outset Nevertheless these three men had never been affected by any of the substances they were handling while many men not given the test had been repeatedly treated one of this latter class having nearly died from the effects of fume poisoning In addition to the examination for albumin fifty-seven of these urines were tested for the presence of picric acid and three were positive

Cleveland Medical Journal

August XVI No 8

25 Diagnosis and Treatment of Congenital Pyloric Stenosis C G Grulee and D D Lewis Chicago—p 527
26 Electric Hypothesis of Exhaustion G W Crile Cleveland—p 540
27 Incipient Scurvy D J M Miller Atlantic City N J—p 541
28 Medical Examination and Aviation Corp W B Chamberlin Cleveland—p 545
29 Headache of Ocular Origin W E Bruner Cleveland—p 549
30 Removal of Watermelon Seed from Trachea of Eighteen Months Old Child W B Chamberlin Cleveland—p 553

26 **Electric Hypothesis of Exhaustion**—The following theory is propounded by Crile Exhaustion from any cause is the state in which electric energy is not present is not being generated or if generated is prevented from being utilized. Thus if the skin is widely excised if viscera are widely exposed if burns destroy the epidermis—the electric energy of the body cannot be utilized as with the destruction of nonconducting epidermis the electric energy is dissipated before it can be used and exhaustion results For a similar reason exhaustion in greater or less degree results from immersion in a warm moist atmosphere, or in water the electricity of the body being conducted away from the body more rapidly than it can be fabricated. If the stored electric energy is discharged or drained by extreme or prolonged exertion by emotion by infection or by prolonged consciousness—deprivation of sleep—then exhaustion results If the acid-eliminating organs the lungs the liver and the kidneys, are interfered with by injury or disease then the generation of electric energy is interfered with and polarization—exhaustion—results

Illinois Medical Journal, Chicago

August XXXII No 2

31 More Common Surgical Emergencies in Urogenital Tract and Their Management. F Kreissl Chicago—p 77
32 Specificity and Nonspecificity of Vaccines D J Davis, Chicago—p 84
33 Vaccines for Prophylaxis C F Ruediger La Salle—p 87
34 Vaccine Therapy in Typhoid Fever S R Slaymaker Chicago—p 92
35 Vaccine in Pertussis H W Cheney Chicago—p 94
36 Timeliness in Application of Radium A Woelfel Chicago—p 97
37 Roentgen Diagnosis of Syphilitic Lesions E S Blaine, Chicago—p 100
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Medical Record, New York

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49 Case of Bilateral Cystic Degeneration of Kidneys L. Wender Corozal Canal Zone—p 236
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Michigan State Medical Society Journal, Grand Rapids

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52 Differential Diagnosis Between Functional and Organic Cardiac Murmurs C H Johnston Grand Rapids—p 337
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54 Paraffin Treatment of Burns O H Cox Sault Ste Marie—p 344
55 Brain Lesions—Report of Cases L. P Parkhurst Grand Rapids—p 347
56 Case of Bullet Wound of Penis Abdominal Wall and Stomach C A Van Dusen Ogden Center—p 352
57 Role of Streptococcus in Recent Epidemic of Acute Respiratory Infections H H Cummings Ann Arbor—p 354
58 Indications and Contraindications in Treatment of Hare Lip and Cleft Palate R H Baker Ann Arbor—p 365
59 Correlation of Roentgenographic and Surgical Findings in Sixty Two Operated Cases J G Van Zwaluwenburg Ann Arbor—p 370
60 Case of Typhoid Spine W H Gordon Ann Arbor—p 378

57 **Rôle of Streptococcus in Recent Epidemic of Acute Respiratory Infections.**—The total number of cases of acute rhinitis pharyngitis and tonsillitis treated by the University of Michigan Health Service during four years was 7 056 Of this number 172 cases developed a middle ear infection or a percentage of 2 4 Mastoiditis developed in fourteen and ten of these came to operation Two of these cases were found to have sinus thrombosis In the series of 1 600 cases of tonsillitis thirty-four or 2 per cent developed joint complications involving most frequently the ankles and elbows Three cases occurred in patients having a streptococcus tonsillitis associated with a scarlet rash Two of these cases proved fatal Acute polyarthritis was observed in twelve of the thirty-four cases Experience has firmly fixed in the author's mind the idea that acute flareups of chronic tonsillitis usually precede the arthritis involvement The frequency with which recurring attacks of rheumatoid symptoms in students having chronic tonsillitis occur and the absolute disappearance after tonsillectomy strengthens belief that these are manifestations of streptococcic activity in the joints and muscular system Of the thirty-four arthritis cases eight, or 23 per cent., developed cardiac complications Following throat infections without arthritic complications the following lesions have been diagnosed mitral insufficiency fifty-three cases aortic insufficiency, eleven cases, mitral stenosis, four cases aortic stenosis, four cases Brain and nervous system complications such as meningitis and neuritis have not been met, however, delirium and extreme alertness and irritability

have been observed in many cases during the acute stage In four fatal septicemias this marked irritability has been the first indication of invasion of the blood stream Cummings considers it a very valuable prognostic sign Pulmonary complications have been few, only seven cases of bronchopneumonia developed after these acute respiratory infections Two students had pulmonary hemorrhages during this epidemic Tubercle bacilli were found in the hemorrhagic sputum although subsequent physical examination and Roentgen examination failed to disclose the area involved Among 1,600 cases of tonsillitis thirty cases of nephritis were observed, or 1 8 per cent Two of this number were of the acute hemorrhagic type Acute parenchymatous nephritis was the more common Two students died from appendicitis and peritonitis of streptococcic origin

New Jersey Medical Society Journal, Orange

August XIV No 8

61 Postoperative Treatment —A J Ochsner, Chicago —p 297
62 Relation of Appendicitis to Certain Cases of Cyclic Vomiting, Report of Six Cases M Runyon, South Orange —p 303
63 State s Insane B D Evans, Morris Plains —p 308
64 Weak Foot, Its Stages and Treatment C. R Keppler, Newark —p 313

Psychiatric Bulletin, Utica, N Y

April, II No 2

65 *Decline of Alcohol as Cause of Insanity H M Pollock —p 102

65 **Decline of Alcohol as Cause of Insanity** —The evidence herein presented by Pollock of the general decline of alcohol as a cause of insanity in New York state shows that the alcoholic cases annually admitted since 1909 have decreased both relatively and absolutely, and intemperance as a contributing factor in causing mental disease has gradually diminished

Southern Medical Journal, Birmingham, Ala

August, X, No 8

66 Etiology of Poliomyelitis H Greeley, Brooklyn —p 621
67 Minor Complaints of Children S S Adams, Washington, D C —p 624
68 Treatment of Average Case of Tuberculosis J J Lloyd, Catawba Sanatorium, Va —p 628
69 *Emetin Hydrochlorid Its Intravenous Administration J W Larimore St. Louis, Mo —p 633
70 Chronic Degenerative Diseases Their Prevalence, Causes and Prevention J P Munroe, Charlotte, N C —p 637
71 Malaria Survey Impounded Waters, Biting of A Punctipennis on Porches, Distance of Flight of A Quadrimaculatus J A LePrince and T H D Griffiths, Washington, D C —p 642
72 What South is Doing for Control of Cancer C E Lakeman, New York —p 644
73 Urgent Need of Hospital Facilities for Tuberculous Negroes M F Sloan, Towson, Md —p 654
74 Protean Manifestations of Appendicitis F G DuBose, Selma, Ala —p 663
75 Wrist Drop from Traumatic Adhesions about Nerve Trunks, Report of Two Cases C S Venable, San Antonio, Tex —p 664
76 Surgical Physiology of Spleen E G Jones, Atlanta, Ga —p 665
77 Torsion of Fallopian Tube Resulting from Small Ovarian Cyst J W Holland, Baltimore —p 670
78 Malaria as Factor in Military Efficiency F L Hoffman, Newark, N J —p 676
79 First Aid to Injured, With Particular Reference to American Red Cross O M Marchmann, Dallas, Tex —p 680
80 Author's Muscle Shortening Operation H H Briggs, Asheville, N C —p 686
81 Chancre of Bulbar Conjunctiva E W Carpenter, Greenville, S C —p 695

69 **Emetin Hydrochlorid Its Intravenous Administration** —Larimore has used emetin intravenously in the treatment of amebic dysentery during the past year, using 1 grain at each injection The injections were given quickly and in one milliliter of fluid In one nonendamebic case in which the drug was used for a therapeutic test there was after twenty-four hours a severe attack of vomiting and diarrhea This could not necessarily be ascribed to the injection This case had a hypertension of 180 millimeters and an occasional intermittent pulse The symptoms, however, were apparently gastro-intestinal rather than circulatory, unless perhaps there was a circulatory element in the vomiting After several injections there was noted in a few cases an arterial hypotension A few cases gave no subjective reaction until after several doses, suggesting an accumulative action The results obtained in eleven cases cited were such as to indicate that the treatment is safe as well as satisfactory

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

Brain, London

May, XL, No 1

1 *Experimental Toxi infection of Central Nervous System D Orr and R Rows —p 1
2 *Dissociation of Visual Perceptions Due to Occipital Injuries, with Especial Reference to Appreciation of Movement G Riddoch —p 15
3 *Progressive Atrophy of Globus Pallidus J R Hunt—p 58

1 **Experimental Toxi-Infection of Central Nervous System.** —This communication is a continuation of experimental work on the action of the bacterial poisons on the nervous system The present research has been directed toward the brain A capsule containing a culture of the *Staphylococcus aureus* was placed in contact with the common carotid artery in the neck The experiments have given positive results so far They help to explain the pathogenesis of certain obscure lesions of the central nervous system found in man Hyaline thrombosis was found to be a constant result in the cords examined when the capsules were placed in the abdominal cavity, and the same morbid change is found in the vessels of the brain when the capsule is placed against the carotid sheath The lesions present are the direct result of this thrombotic change, and vary in kind with the degree to which the local vascular supply is interfered with Orr and Rows examined three brains and observed two types of lesion 1 Coagulation necrosis of the nerve cells in the cornu ammonis, in the cerebral cortex, and in the amygdaloid nucleus 2 Softening in the stratum moleculare of the cornu ammonis They also found that there is a difference in the two vascular systems which subserve the grey and white matter respectively The evidence of this is seen in the histologic difference between the cortical and subcortical lesions The former are diffuse and consist in necrosis of the nerve-cell units, the latter—in the cornu ammonis—involve a circumscribed locality and are typical of infarction. The two types of lesion observed by the authors illustrate how the two factors, degree and situation, can produce dissimilar pathologic results, although the pathogenesis is the same, and applying this to clinical neurology, it becomes apparent that certain nervous syndromes, though widely different in symptomatology, are pathogenetically one and the same disease The difference in symptomatology is in large measure due to the anatomical site of the lesion, but the degree to which the nerve structures are involved is an equally important factor Toxic hyaline thrombosis of capillaries or even larger vessels can contribute very largely in the production of nervous lesions of different degree

2 **Dissociation of Visual Perception** ***Due to Occipital*** **Injuries** —Reviewing the results of examination of cases showing visual defects from occipital injuries, Riddoch summarizes his work as follows (*A*) With regard to the appreciation of movement when an object is oscillated in the so-called blind field (1) That movement should be given a place among the stimuli which are recognized as originating visual perception (2) That light and movement are the first stimuli to be appreciated in a recovering visual field And since the appreciation of both returns *pari passu*, and since the field for light cannot be recorded on a chart, while that for movement can, the fields for movement, charted at intervals, give the earliest indications of recovering vision (3) That the presence of dissociation between the fields for appreciation of movement and recognition of an object afford a valuable aid in prognosis In cases in which movement is perceived in the affected field, there will be some return of vision, on the other hand, where no movement is perceived after an interval of some months has elapsed the affected field will probably be permanently blind (4) That recovery for the appreciation of movement begins at the periphery of the field, and extends inward toward central vision (*B*) That the types of visual dissociation exhibited are analogous to the dissociations of general somatic sense impressions described by Head and his co-workers as occurring from

cerebral injuries (*C*) That in certain of the cases a consideration of the probable damage to the brain along with the charts of the visual fields yields facts which support the contentions of Holmes and Lister on cortical representation of the retina (1) That macular vision has its center in the posterior part of the visual area (2) That the macula like the rest of the retina is not represented bilaterally in the cortex (3) That the cortical center of the peripheral zones of the retina is in the anterior part of the area striata (4) That the superior quadrants of each retina are represented in the upper and the inferior quadrants in the lower parts of each visual area

3 See The Journal June 17 1916 p 2034

British Medical Journal, London

July 28 II No 2952

4 Tropical Medicine and Hygiene P Manson—p 103
5 India and Medical Progress R McCarrison—p 109
6 *Treatment of Scabies by Chlorin Gas C H Clark and H S Raper—p 113
7 Anaphylactic Shock After Injection of Serum Intravenously C A Patrick—p 114
8 Grave Diabetes Mellitus with Pulmonary Tuberculosis Following Mumps J B Gilhespy and H S Holden—p 115

6 **Treatment of Scabies by Chlorin Gas**—Seventy-four cases of scabies were exposed by Clark and Raper to a concentration of one to two parts of chlorin per thousand of air (by volume), the service gas helmet being worn as a protection The exposures were of five minutes duration and occurred on successive days Usually four exposures were given but in some instances this number was exceeded The patients had a hot bath before their first treatment and wore ordinary hospital clothing At the first exposure the bedding was placed in the 'gassing' chamber The officers wore a box respirator as protector and were exposed to a concentration between two and three parts of chlorin per thousand of air The exposure lasted twenty minutes A bath was taken on the morning of the first day of treatment and not again except in one case until the day after the last exposure of gas The number of exposures given and the intervals between them were varied in order to find out the best conditions of treatment A few of the patients were given four exposures on successive days and then, after two days' interval two more exposures on successive days Others received two exposures on the first two days then, after two days' interval two further exposures on successive days Three of the officers were given two exposures on the first two days and then after three days' interval, one more exposure only On the first day of treatment the officers' underclothing sleeping garments and gloves were exposed to the gas and clean bed linen was ordered the same night The clothing was exposed for twenty minutes The treatment of both officers and men was carried out in rooms with about a thousand cubic feet of air space Chlorin was delivered into this from a cylinder and it was found, after very little practice that an approximation to the concentration desired could easily be obtained Nearly sixty noncommissioned officers and men were treated under somewhat unsatisfactory conditions Of the whole number not more than 25 per cent were cured Many of the cases not definitely cured showed much improvement. Of fourteen officers treated, eleven were cured and three much improved One feature of the treatment which was noted in officers, noncommissioned officers and men was the production of a very irritable condition of the skin, especially about the scrotum and axillae, in some of the cases It was most marked in cases which may be termed chronic, and which had been treated by sulphur in one form or another for varying periods without cure, and also more noticeable in the cases which were given more than four exposures

Journal of Laryngology, Rhinology and Otology, London

July XXXII No 7

9 Clinical Records from Provincial Hospital N Maclay (To be continued)—p 210
10 Abscess of Nasal Septum of Six Years' Duration J B Horgan,—p 215

Lancet, London

July 28 II, No 4900

11 Fatigue and Alcohol A F S Kent—p 107
12 Fallacies of Relying Solely on Agglutination Tests for Diagnosis of Typhoid in Antityphoid Inoculated Individuals, with Special Reference to Use of Dreyer's Method R P Garrow—p 112
13 Technic of Condenser Testing in Nerve Injuries F Hernaman Johnson—p 117
14 War Nephritis J C Davies and R P Weldon—p 118
15 Extension Splint for Ambulatory Treatment of Fractures of Femur N B Taylor—p 120
16 Case of Second Cesarean Section in Same Patient H M Dowler—p 122
17 Rupture of Tubo Uterine Gestation Excision of Sac W G Nash—p 122
18 'Needle Wing Grip' for Intramuscular Injections C F White—p 124

August 4 II No 4201

19 Meat Inspection, with Special Reference to Developments of Recent Years W J Howarth—p 147
20 *Microscopic Histology of Malaria as Occurring in Salonika Force in 1916 L S Dudgeon and C Clarke—p 153
21 Treatment of Tuberculous Eyes by Local Application of Tuberculin H A Ellis and H M Gay—p 156
22 Drainage of Infected Hemothorax A Cox—p 159
23 Case of Hemiplegia Following Pleural Effusion G deB Turtle—p 161
24 Cases of Poisoning by Sodium Nitrite and Boric Acid H Singar—p 162
25 Malaria Acquired in England A C D Firth—p 162

20 **Microscopic Histology of Malaria**—Investigations were undertaken by Dudgeon and Clarke for the purpose of ascertaining the cause of death in some of the rapidly fatal cases of malaria also whether the lesions produced were more severe than those already recorded, and the observed frequency of cardiovascular phenomena These observations include the investigations of the cerebrum, cerebellum medulla heart muscle suprarenal glands, liver, spleen, kidneys and intestinal tract from patients who died in coma, those who died quite suddenly, and those who died with general malarial toxemia Examination of the heart muscle in six cases of malaria showed fatty degeneration in each instance Blocking of the capillaries with infected red cells is present in most instances The microscopic changes in the suprarenals are very numerous The most constant alteration from the normal histology is the diminution in the lipoid substances which give such a characteristic appearance to the normal gland The chromaffin substance in the medulla is also greatly reduced in amount In many of the suprarenals the deep cortical pigment is found to be abundant Malarial pigment is present in each specimen It is found free, lying in the suprarenal cells in spider cells from the connective tissue framework which bounds the glandular tissue, and in large mononuclear cells in the sinuses Necrosis of the cortical and medullary tissue is especially well marked in those cases in which there is thrombosis of blood vessels Small parasites and spores are found in most of the glands, but they are far more numerous in some cases than in others, while in one instance crescents were present, although few in number The cerebrum, medulla, pons and cerebellum were examined from three cases In each case the patients died in coma The capillaries are engorged with blood, as also the arterioles, while many of the blood vessels are thrombosed and the thrombi are composed of agglutinated red cells, partially hemolyzed red cells and blood pigment. This pigment is taken up by the endothelial cells which are found lying free in the lumina of the vessels In the spleen there was congestion in all cases free hemorrhages in some, while in several instances necrosis of the splenic pulp occurred This necrosis affects chiefly the pulp, but there is some necrosis of the Malpighian corpuscles in a few instances while in the case of blackwater fever the necrosis of the Malpighian corpuscles is the most striking feature The areas of necrosis contain black pigment. Thrombosis of the capillaries and arterioles in many cases is a striking feature In the liver the deposit of pigment is present in every case. Fatty change is present, but it is only in a few cases that the fat droplets are abundant Necrosis of liver tissue in isolated areas is of common occurrence. Parasites are found in the red cells in the sinuses and in the blood vessels, while the vessels in a section of the liver which shows thrombosis

contain numerous infected red cells *in the thrombi*, and also a few crescents Changes in the kidney are similar to those of the other viscera

21 **Treatment of Tuberculous Eyes by Local Application of Tuberculin**—The treatment employed by Ellis and Gay consists in instilling tuberculin into the conjunctival sac directly, in various dilutions of increasing strength The eye thus gradually acquires a permanently raised resistance to the tuberculin poison, and so becomes no longer sensitive to local tuberculin reactions, as the result of congestive conditions produced by strain or irritation During the treatment the eye is kept uncovered, being only protected by a shade when photophobia is present All cases have been treated with bovine tuberculin, ordinary P T O being used in tenths

Archives Médicales Belges, Paris

June LXX, No 6, pp 481 576

26 The Physiologic Bases of Shock D Baruch—p 481
27 Occupational Guidance and Reeducation of War Cripples C Dam—p 493
28 *Venereal Diseases in the Army J Gaudy—p 509
29 General Principles for Treatment of War Fractures M Stassen and J Voncken—p 515 (Continuation)
30 Medical Questions Relating to Belgian Military Refugees in Holland R Wybauw—p 569

28 **Venereal Disease in the Army**—Gaudy remarks that venereal diseases have spread in an appalling manner since the outbreak of hostilities He says "This has been observed in previous wars, but the conditions of the present war impart a character of peculiar gravity to these diseases Today it is not two armies that are fighting, but two groups of entire nations are arrayed in battle against each other and it is these whole nations that are feeling the effects of the evil Among the venereal diseases syphilis represents about 20 per cent In all classes of society the general level of morality has been lowered since the war began, and venal or lustful prostitution has developed in notable proportions" He cites Balzer's statement that up to the end of February, 1915, 30,000 cases of venereal disease had been declared among the German troops occupying Belgium "In Italy, the Milan hospitals in eleven months had 4,861 inmates with venereal disease, and Thibierge estimates that in the French armies between 4,000 and 5,000 contract syphilis each month, that is 50,000 or 60,000 a year, a total for the three years of war of 150,000 or 200,000 new syphilitics" In the Belgian army few statistics are available, but one service in ten months had 1,500 venereal cases, including 317 of syphilis, all but ninety-two recently acquired

Before the war, the civil courts in estimating the incapacity for industrial labor entailed by syphilis figured it at from 15 to 25 per cent This applies to military service as well We know also the neurasthenia so often engendered by chronic gonorrhea From the military standpoint therefore the venereally affected can render but a mediocre service on account of the depressing effect exerted by this kind of disease on the spirits as well as on the physical organism Gaudy urges that while the men are under military discipline their syphilis should be combated with the utmost energy and measures taken to reduce the evil to the minimum Italy has taken the most radical measures, aiming to reduce to the minimum the sources of contamination and to enforce thorough treatment Uncontrolled prostitution is strictly checked, especially in the war zone, and the open houses there are kept under rigorous supervision and no civilians admitted Official dispensaries and hospitals for venereal diseases have been installed at numerous points and compulsory courses of treatment are given to soldiers and civilians alike "This latter is a most fortunate innovation" In France there are some similar institutions but they are not numerous, and they are left to the initiative of the army medical officer and have not been generalized In the Belgian army, the infirmary of each division has a consulting post for venereology but there is no uniform plan, and only a few dispensaries have been established back of the war zone. But even with this, they are more numerous than in the British army which has only one for each army "Progress can come only by multiplying and unifying the antivenereal institutions and enlightening the men" The number of infections in the war zone proper is comparatively small, and Gaudy does not think it wise or desirable to suggest the creation of public houses in the war zone like those of the Italian army, or those organized back of the German armies, and by the Japanese on the campaign in Manchuria

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

July 15, VI No 4 5 6, pp 97 192

31 *Modifications in the Antitryptic Power of the Blood Serum in Pregnant Women G Ecalle—p 97
32 *Fat and Lipoid Content of the Serum of Pregnant Women G Ecalle—p 128
33 *The Reactions Resulting from the High Fat and Lipoid Content of the Serum of Pregnant Women—G Ecalle—p 139
34 *Sudden Death a Day or So After an Apparently Successful Operation A Brindeau—p 159
35 Advantages of Erodium Cicutarium as Means to Arrest Uterine Hemorrhage J A von Dongen (Amsterdam)—p 169

31 **The Antitryptic Power of the Serum of Pregnant Women**—Ecalle devotes over thirty pages to his study of the serum of pregnant and nonpregnant women in respect to its power of checking the digestion of albumin by trypsin This power is augmented in pregnant women but does not reach an appreciable degree until the fourth or sixth month, it then keeps high and for two weeks after delivery, and is highest in case of pregnancy intoxication The index outside of pregnancy averages about 46 In the first two months of pregnancy it may be normal or rise to 50, by the third or fifth month it averages 65, and in the four last months, 77 In two pregnant women at the sixth month the index was 85 and 90 There is too little constancy in these findings for the antitryptic power alone to serve as the basis for assumption of a pregnancy He explains it as the antibody reaction to the penetration into the maternal blood of tryptic ferments from the placenta

32 **Fats and Lipoids in the Serum of Pregnant Women**—The cholesterin in the serum showed likewise a gradual increase as the pregnancy advanced.

33 **Reactions from the High Lipoid Content of the Serum in Pregnant Women.**—Ecalle has not studied the Neumann and Hermann reaction in the serum of pregnant women but, judging from analogy, does not think it can be of much diagnostic value The same can be said of the activation of cobra venom by the serum of pregnant women This reaction he has studied extensively, and found it progressively more and more pronounced in pregnant women It seems to be caused merely by the increased proportion of lecithin in the serum of the pregnant, and hence is not specific to pregnancy At the same time, this reaction is so distinct and it appears so early—by the beginning of the third month—that it may aid in the diagnosis of pregnancy in dubious cases Before heeding the findings, however, we must exclude tuberculosis, cancer and most infectious diseases and affections of the nervous system In short, his final conclusion is that notwithstanding their great biologic interest, this and the other reactions studied do not have much practical import

34 **Sudden Postoperative Fatalities**—Brindeau refers to the sudden death a day or two after an apparently successful operation, when the patient seems to have entirely recovered from the shock. Such fatalities have been ascribed to the anesthetic, to insufficiency of kidneys or liver, to embolism, pleural adhesions, myocarditis, meningeal hemorrhage or acute sepsis Even when necropsy was possible, the true cause of death was often left a mystery Of late, literature has been accumulating on suprarenal insufficiency as responsible for these postoperative fatalities With chronic suprarenal disease, it is easy to understand that the anesthetic, might break down the already damaged suprarenals beyond recuperation He reports in detail a case of this kind, the woman of 36, apparently healthy, came to the clinic for suture of an old laceration of the perineum The minor operation was borne apparently perfectly but the woman died suddenly in the night and necropsy disclosed chronic tuberculous disease in both suprarenals which had evidently entailed acute insufficiency under the chloroform One supra-

renal weighed 16 and the other 7 gm both were almost completely destroyed by the tuberculosis Savariaud has reported a case in which a child of 8 died the sixth day after general anesthesia and both suprarenals were found the seat of a large hematoma The liver in these cases also shows signs of having suffered and the thyroid and the pituitary were always congested but these changes are like those that have been encountered from the action of chloroform alone

It the patient had been examined for suprarenal insufficiency before the operation testing for white dermographism the suprarenal white line and for unduly low blood pressure it might have been possible to have been forewarned as to danger from the suprarenals Brindeau's patient had a very dark complexion—so very dark that he asked her nationality She said she had always had this pigmentation The suprarenal lesions in such cases might be discernible only with the microscope In one case on record the suprarenal fatality followed a fall the shock of the trauma alone without any anesthetic being sufficient to upset the precarious suprarenal balance The young girl had been supposedly healthy but both suprarenals were in cheesy degeneration This was the finding also in the case of an apparently healthy woman who died suddenly a day or so after a normal childbirth also in a fatality following an operation for an anal fistula Anesthetics modify the fat in the suprarenals and when there is reason to suspect suprarenal insufficiency the operation should be done under local anesthesia If this is not possible epinephrin should be given systematically before and after the intervention

Lyon Médical

July CXXVI No 7 pp 301 348

36 Experiences with Malaria in Morocco de Teyssier —p 301
37 Treatment of Acute Gonorrhea in the Army Carle —p 339

37 **Treatment of Acute Gonorrhea in the Army**—Carle relates that his analysis of over 2 000 personal cases converted him four years ago to the superiority of antiseptic over expectant treatment and his extensive experience since with acute gonorrhea in the army has only confirmed him in this opinion The large number of men to be treated and the necessity for strict surveillance not to allow men to be detained away from their duties any longer than is strictly necessary the lack of assistance and the necessity for using staple drugs demand a technic that is direct immediate, intensive simple rapid and easy to control This he accomplishes with an injection of a 25 per thousand solution of potassium permanganate three times a day Copious rinsing out of the urethra under the circumstances invites complications as the technic and the surveillance are liable to be defective In about twelve days he commences the irrigation of urethra and bladder with a 10 per thousand solution of the permanganate At this stage the irrigations can be entrusted to a trained attendant This is done in the morning and at noon and night an injection is given of a 1 per thousand solution of silver nitrate rapidly increasing the strength to 2 or 3 per thousand The injection is retained each time for five or six minutes and this second part of the treatment is kept up for fifteen or twenty days at least. He is convinced that the relapses in two thirds of the cases are due to treatment being discontinued too soon He mentions a number of minor technical points for the carrying out of the treatment thus outlined

Paris Médical, Paris

July 14 VII No 28 pp 45 60

38 *Measurement and Record of Joint Impotence L Binet.—p 46
39 Hypertrophy of Diseased Muscle with Parallel Hypertrophy of Skeleton H Claude and J Lhermitte —p 49
40 *Suprarenal Hemorrhage in Course of Anthrax. H Roger —p 51
41 Case of Vesiculobullous Dermatitis with Multiple Manifestations in Visible Mucosa N Fiessinger and R Rendu —p 54
42 *Heating Cabinet for the Severely Wounded in Shock (Projet de Cellule Chauffante) H. Feuillade and G Blechmann. —p 58.

38 **Measurement and Record of Functional Joint Disability**—Binet gives illustrated descriptions of a number of devices which permit accurate records of the range of excursions of the knee, shoulder, and other joints The patient stands in front of a screen or rests the part on a horizontal screen which is marked off with radiating lines representing angles of ten degrees difference As he raises his arm or flexes his elbow a photograph is taken showing the extreme excursions possible the extreme range being shown on the same plate, both with passive and active movements A series of uniform photographs of this kind shows the progress of the case and the outlook

40 **Suprarenal Hemorrhage in the Course of Anthrax**—Roger comments on the comparative frequency of involvement of the suprarenals in the camp diseases including dysentery malaria and gas gangrene, and reports a case of anthrax septicemia in which cardiovascular disturbances were pronounced from the first. The young man suffered from intense pain in the epigastrium with profuse vomiting and final hematemesis evidently due to elimination of the microbes or their toxins by the gastro intestinal mucosa The extremely low blood pressure and imperceptible pulse were explained by the necropsy findings of edema of the anterior mediastinum compressing the pericardium, and destruction of the left suprarenal by a recent hemorrhage

42 **Hot Cabinet for the Severely Wounded**—In order to economize time space and efforts Feuillade has the men in shock from severe wounds placed in the small operating room connected with a No 2 Bessonneau tent The arrangements for heating this small operating room are excellent, and it can be kept very hot and hold four wounded men The benefit from the heat is remarkable materially abbreviating the period of shock In order to give up this room for this purpose an extra operating room has to be installed in connection with the tent but during warm weather no heating appliance is required for this The advantages of this *cellule chauffante* have been demonstrated so conclusively by his experience that the principle will probably be adopted for all the advanced operating posts, he says

Presse Médicale, Paris

July 12 XXV No 39 pp 401-408

43 *Fourth Disease (Maladie de Dukes.) A. Lesage —p 401
44 Specific Action of Tin on Staphylococci A Frouin —p 402
45 Streptococcus Associations in Typhus D Danielopolu —p 403
46 *Necessity for Supervising the Use of the Foot After Recovery from War Wounds L. Imbert —p 405

43 **Fourth Disease**—Lesage replies to those who doubt the existence of Dukes disease as a separate morbid entity, saying that he has encountered cases of eruptive disease which most certainly were not measles and were not scarlet fever He describes sixteen features of these cases including the absence of pruritus of eye and throat disturbances, the incubation of fourteen or fifteen days and the short duration of the disease, not over a week. Throughout there was nothing to suggest scarlet fever, except the apparently scarlatinal eruption

44 **Specific Action of Tin on the Staphylococcus**—Frouin here reiterates his former statements in regard to the curative action of the salts of tin injected into animals inoculated with staphylococci It is common knowledge in certain parts of the country that tin-platers never have furuncles Addition of metallic tin to a culture medium on which *Mycoderma aceti* is growing does not check the proliferation of the microbe but there is no further production of acetic acid These and a number of experimental facts related led him to use a mixture of metallic tin and tin oxid in treatment of staphylococcus infections and he reports gratifying results even in old rebellious furunculitis Recent experiences with war wounds infected with staphylococci have shown also encouraging results The tin was taken internally and the wound dressed with a 5 or 10 per thousand solution of tin protochlorid in water with glycerin

46 **Reeducation in the Use of the Foot after War Wounds**—Imbert warns anew that efforts must be made to ward off talipes equinus and other deformity when the men wounded in the legs begin to walk. While the man is confined to bed, the foot may get into a settled deformed attitude although the foot itself was not involved in the war wound He has seen men with fractured femur which healed perfectly but the

The boy had been previously healthy except for pneumonia at one time and a fractured leg After a brief period of a hemorrhagic tendency, suggesting scurvy, severe anemia followed with enlargement of the spleen—the blood typical of myelogenous leukemia—fatal in a month or two after the first sign of trouble Fully 33 per cent of all the nucleated blood corpuscles were megaloblasts and normoblasts Holst found streptococcus infection in three cases of acute leukemia, and Harbitz the staphylococcus and the pyocyaneus in two cases respectively The second case here described was in a previously healthy young woman, the hemorrhagic tendency developed acutely in the course of a suppurative process in the jaw, with progressive anemia and death the third month In neither of these cases could any germ be cultivated from the blood Both developed during the month of April, 1916 Roentgen exposures were applied without benefit in the second case The third patient was a boy of 17 who entered the hospital six months later than the others He had been previously robust and said he had never been sick except for a briefly transient period of "poor blood" for which he had taken iron, the summer before He died five days after he entered the hospital with the diagnosis of leukemia The first symptoms, pallor and lassitude, had been noticed less than a month before The glands soon became enlarged and the blood findings typical of acute lymphatic leukemia Dyspnea, somnolency, edema, polydipsia and polyuria were marked symptoms toward the last. The pituitary body was found of normal size and shape, and the spleen was not so large as in the other cases, while the glands and the thymus were much larger This seems to be a differentiating point for lymphatic leukemia, as also the protrusion of the eyeballs and the restriction of the hemorrhagic tendency to the intracranial region A gram-positive diplococcus was found in all the organ sections but the blood was not examined during life Nicolaysen thinks there need be no difficulty in distinguishing between acute myelogenous and acute lymphatic leukemia, as the clinical picture differs and the Pappenheim stain shows such differences in the blood picture, as he illustrates with colored plates The indol-phenol reaction is not very reliable, and is of use only in dubious cases This is based on the blue reaction when a solution of dimethylparaphenylendiamin and a solution of alpha naphthol act on the protoplasm in cells of myelogenous origin (W H Schultze)

93 **Venous Murmur**—Utheim refers to the sound heard on auscultation of the triangular fossa between the sternal and the clavicular attachments of the sternocleidomastoid muscle Laennec called it the song of the arteries Utheim explains the mechanism for the sound, and states that it is practically constant in children under 10 but grows less frequent with advancing age It does not seem to have any connection with anemia

94 **Gastric Ulcer Perforation Patched with Flap from Peritoneum**—Raabe's patient was a man of 45 with stomach disturbance for about three years when symptoms of perforation compelled operative treatment The perforation was quite large, in the middle of the lesser curvature, and as the omentum was too short to draw up over it, he covered the opening with a piece, 4 by 4 cm, cut from the reflection of the peritoneum between the falciform ligament and the parietal peritoneum The edges of the perforation were freshened with phenol and the vicinity painted with iodin, and the flap was sutured as solidly as possible over the opening For three weeks the man was fed exclusively with nutrient enemas, an evacuating enema being given daily after the fourth day The patient thrived remarkably and by the sixth week could eat ordinary food

95 **Poliomyelitis with Bulbar Paralysis**—Sommerfelt here gives the necropsy findings in one of the cases published by him last year and summarized in these columns June 23, 1917, p 1952 Nothing was found to throw light on the combination of progressive bulbar paralysis and progressive spinal muscular atrophy in the man who at one time had had poliomyelitis

96 **Tumor of Pituitary Tissue in the Retropharynx.**—Leegaard's patient was a workman of 23, mostly healthy, until in 1912 he began to cough and experience difficulty in swallowing, with pains in the throat and difficulty in breathing The large retropharyngeal tumor was easily removed in several pieces, without bleeding It was evidently a pituitary adenoma, growing from the anterior lobe of the pituitary body, the pharynx hypophysis, as it is called But there were no symptoms at any time suggesting any anomaly in pituitary functioning This confirms the general assumption that the pharynx hypophysis does not possess a physiologic function

97 **Multiple Progressive Ossifying Myositis.**—Johannessen gives an illustrated description of a case of this rare affection in an apparently well developed child of 2 with normal mucosa but a discharge from both ears She screams if she is touched, but otherwise sits quietly, the head bent forward, watching with interest what goes on around but following objects only with her eyes, not moving her head She presents a typical example of this affection which usually commences with edema and tenderness of certain muscles, with slight fever Then follows a more solid infiltration and finally bone formation The infiltrations skip about abruptly from one muscle group to another, and the temperature shows little change There do not seem to be any data on record as to the length of the interval between the infiltration and the bone formation, but in this case there was tumefaction in the superior serratus in November, 1916, and by the following January the Roentgen rays disclosed bone tissue in the muscle at this point In one case on record the disease progressed after a pause of twenty-three years In the only case of the kind reported in Norwegian literature, the trouble began at the age of 2 and the girl died suddenly about 12 She had been unable to feed herself for years, as she could not move her arms, but was able to take a few steps and could read and sing although she had never been able to go to school The various theories that have been advanced to explain this affection ascribe it to a bony diathesis, a trophoneurosis, inflammatory processes in the muscles or defective differentiation of the mesenchyma This latter assumption is sustained to a certain extent by the almost invariably accompanying microdactylia The latest and most comprehensive study of the affection was published by Goto in 1913, who repeatedly examined scraps of tissue from a boy of 4 as he grew up with the affection In Johannessen's case, potassium iodid, thyroid treatment and other measures were systematically applied, but no benefit is mentioned The child had a good appetite and slept well, with the natural functions in good order, but she fell when she tried to get about, and the part bruised would swell up instantaneously as large as half an apple

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98 *Lumbar Puncture Fluid Constantly Sterile with Severe Otogenous Meningitis G V T Borries—p 997
99 Sulphur in Treatment of Scabies (Erfaringer over Fnatbehandling med Ung hepatis sulphuris) Ehlers—p 1005
100 Present Status of the War Bread Question V Scheel—p 1008

98 **Sterile Lumbar Puncture Fluid with Otogenous Meningitis**—Borries discusses how it is possible for otogenous meningitis to develop and run its course to a fatal termination with the cerebrospinal fluid sterile throughout He tabulates the findings in eight such cases The infection occurred by way of the tympanum and mastoid bone in nearly all, in only one was it traceable to the labyrinth But in all there was an abscess or sinus phlebitis, subdural suppuration It is evident that purulent internal pachymeningitis may induce meningitis with which the cerebrospinal fluid may be constantly sterile and approximately normal otherwise, confirming the possible mildness of otogenous meningitis The danger lies in the concomitant purulent internal pachymeningitis To be fully instructive, lumbar puncture must be repeated often as the findings are liable to veer from positive to negative and vice vers [illegible] any time Finding the fluid sterile [illegible] toms [illegible] is are pronounced should warn [illegible] purul [illegible] ningitis or circumscribed sup [illegible] thu [illegible] the clue for diagnosis and

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THE NONSPECIFIC CHARACTER OF VACCINE THERAPY *

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Wright s conception of the value of vaccine therapy was based on the accuracy of the opsonic index When later the opsonic index was shown to be an unreliable guide, and since the immunologists had no better method for determining immune body formation, it was necessary in case vaccine therapy was to be continued that the clinician draw his own conclusions regarding the value of this method of treatment Interpretation of results passed now from the hands of the laboratory worker to the clinician

The application of any therapeutic measure to this group of diseases is fraught with considerable difficulties Spontaneous recovery is the rule, the duration and intensity of the infection is so variable that it is extremely difficult to draw accurate conclusions regarding the value of any special line of treatment In order to justify statements regarding curative agents, a large number of carefully selected controls must be studied, and then only when the difference in results are striking should we be justified in concluding that the course of the disease had been modified

Typhoid fever is the only acute infection, treated with vaccines, in which a large series of cases with suitable controls has been reported A study, however of the accumulated statistics of typhoid does not lead to the conclusion that vaccines when given subcutaneously have materially modified the course of the infection We are disappointed when we search the literature for beneficial results from vaccine therapy in colon bacilli infection, acute or chronic rheumatism bacillary dysentery, whooping cough, gonococcal infections, and dermatologic conditions, such as acne and furunculosis Furthermore, a review of the literature fails to reveal any striking evidence that vaccines when given subcutaneously have definitely modified the course of any acute infection, much less has it been demonstrated that the results were due to the specific character of the vaccines It has only been in the last two years that extensive comparative studies have been made regarding the value of specific and nonspecific vaccine therapy As a result of these studies it now appears possible to draw conclusions on this point

It may be said that the first well defined and unquestionable results obtained by vaccine therapy were those[1] recently obtained by Ichikawa and independently by Kraus and Mazza,[2] and Penna in the treatment of typhoid by the intravenous use of typhoid vaccine Kraus used a polyvalent vaccine of ether-killed organisms and Ichikawa a sensitized vaccine These investigators, by giving a dosage of from 200 to 300 million, were able to terminate, usually after a single injection about 20 per cent of their cases by crisis About 20 per cent more terminated by rapid lysis, the temperature reaching normal in from three to five days An additional 20 per cent showed a favorable modification in the temperature curve with apparent but not striking shortening of the course of the disease The remaining 40 per cent, with the exception of the temporary drop in temperature following the chill which occurs after the injection, were not affected by the treatment Occasionally when a single injection failed to give results, definite improvement may follow a second injection Rarely, however, if two injections fail to give results is there likely to be improvement after further treatment

Ichikawa and Kraus very early determined that the reaction was not specific, as the former discovered that the typhoid vaccine worked equally well in paratyphoid and the latter that similar good results could be obtained in typhoid with a colon vaccine, the important factor being that the vaccine be given intravenously This intravenous vaccine in typhoid not only marked the beginning of striking results from vaccines, but also raised the question of the specificity of the reaction Much earlier than this, however, the literature contained considerable evidence that the reaction was certainly not entirely specific in character

In 1893, Fraenkel[3] treated fifty-seven typhoid patients with subcutaneous injections of killed typhoid bacilli He reported that the course of the disease was favorably modified and in a few cases terminated by rapid lysis

Rumpf,[4] an associate of Fraenkel's, repeated the treatment in another series, using, however, the *Bacillus pyocyaneus* with equally favorable outcome While Rumpf's results were disputed, in the light of recent observations they were probably correct

Von Wagner[5] in 1909, having observed that patients with general paresis frequently showed marked temporary improvement after a course of fever, treated a number of patients by exciting a febrile reaction with tuberculin He employed large doses, 0 5 c c, every second day until from seven to twelve injections had been given, and reported definite temporary improvement, which he considered too constant to be accounted for by the *spontaneous improvement often noted* in this disease

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* Read before the Section on Pharmacology and Therapeutics at the Sixty Eighth Annual Session of the American Medical Association New York June 1917

[1] Ichikawa Abortive Treatment of Typhoid and Paratyphoid, Sei i Kwai Med Jour 1913 **32**, 73

[2] Kraus and Mazza Zur Frage der Vakzinetherapie des Typhus abdominalis München med Wchnschr 1914 **61**, 1967

[3] Fraenkel Ueber Spezifische Behandlung des Abdominal Typhus Deutsch. med Wchnschr 1893, **19** 958

[4] Rumpf *Die Behandlung des Typhus abdominalis mit Abgetoteten Kulturen des Bacillus Pyocyaneus Deutsch med Wchnschr 1893* **19** 561

[5] Von Wagner Ueber die Behandlung der progressive Paralyse, Wien med. Wchnschr 1909 **59**, 2125

Vaughan,[6] several years ago in his studies on immunity, observed that it was possible to produce in animals a transitory immunity to the colon bacillus by using peptone or egg albumin, and that this immunity was apparently equal to that following immunization with colon bacilli He also noted that animals immunized to the *Bacillus subtilis* and *Bacillus prodigiosus* possessed a certain degree of immunity to typhoid and cholera

Schmidt,[7] in 1910, called attention to the increased resistance of the body to a variety of common infections following any form of vaccine therapy

Herescu and Shoninger,[8] in 1913, in their efforts to show the close morphologic relation between the gonococcus and meningococcus, reported favorable results in gonorrheal complications, as arthritis and ophthalmia, from the use of meningococcus serum

Returning to the observations that have been made on the nonspecific character of vaccines since Kraus' work in 1914, it will be seen that in the short period of three years there has developed an extensive literature Ludke,[9] after verifying Kraus' results with colon vaccine, experimented in typhoid with a 4 per cent solution of deutero-albumose given intravenously He obtained results which compared favorably with those obtained with typhoid vaccine This marked a step in advance, showing that not only were the vaccines not specific but also that similar results could be obtained by using a foreign protein of nonbacterial origin More recently, Saxl[10] has successfully treated typhoid by using intramuscular injections of sterilized milk Mittlander[11] has treated 300 cases of typhoid by the intravenous injection of 1 c c of 20 per cent caffein and 10 per cent camphor He does not state how these drugs were given, but presumably intravenously, as within fifteen minutes the patients had a chill with marked temperature elevations He reports frequent termination by lysis or crisis The chill reported may have been due to impure physiologic sodium chlorid solution, but more likely to the caffein and camphor There is considerable evidence to show that not only foreign protein but also other agents that will excite a chill may bring about a sudden immunity Janeway[12] refers to the rapid termination by lysis of typhoid in a patient in whom a chill followed a transfusion for hemorrhage

Various foreign proteins are now being used in this country in the treatment of a variety of acute infections, largely owing to the stimulating work of Jobling and Petersen,[13] chiefly typhoid vaccine and proteose In Germany, sterilized milk and sodium nucleinate are chiefly used Next to typhoid the condition which has received the greatest attention has been the arthritides For this condition, Muller and Thanner[14] and Schmidt[15] have used intramuscular injections of sterilized milk, Smith[16] and Luthlein,[17] normal horse serum, Culver,[18] colon meningococcus and gonococcus vaccines, Muller and Weiss,[19] tuberculin Colloidal substances, like collargol,[20] have also been used successfully, Lusk[21] and I have treated 130 cases of arthritis, using chiefly typhoid vaccine, results of which will be detailed later

A less extensive series of a variety of other infections have been reported Kraus treated eight patients with puerperal sepsis with colon vaccine, and reports beneficial results in seven Ziembowski[22] has injected milk with good results in sepsis and tuberculosis, especially of the bones Schmidt has treated typhus, Muller and Thanner conjunctivitis and iritis, and Friedlander[23] trachoma with milk Engman and McGarry[24] have used typhoid vaccine successfully in lupus and psoriasis This probably explains the good results obtained in psoriasis with autoserums, as after coagulation the serum becomes a foreign protein Strouse and Frank[25] have treated hay-fever with staphylococcus vaccine, and report results equal to those obtained by the use of pollen

Our observations have been confined chiefly to the application of foreign protein therapy to the acute, subacute and chronic arthritides During the past year and a half we have treated at the Cook County Hospital 175 cases This included streptococcus and neisserian types In our first series of twenty-five, the patients after entering the hospital were kept at rest in bed for a few days before receiving any treatment in order to determine what benefit might be derived from this procedure alone We have used typhoid vaccine almost exclusively as a foreign protein, and in a few cases, proteose and chicken serum, the latter two were used in a sufficient number of cases to show that the results are apparently the same as with the typhoid vaccine The vaccine at first was prepared from Rawling's strain, but later from a culture obtained from a virulent typhoid Commercial vaccines are unreliable on account of the variable amount required to give the desired reaction With the freshly prepared vaccine the dosage has ranged from 40 to 150 million When beginning the use of a fresh supply of vaccine, its toxicity was determined by beginning with a small dose of 40 million and then increasing until the amount required to give the desired reaction was ascertained This precaution is advisable, as the toxicity of the vaccine may be quite variable With few exceptions the vaccine has been given intravenously Following

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[7] Schmidt, R Med Klin, 1910, No 43

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[9] Ludke Behandlung abdominal Typhus mit intravenosen Injektionen von Albumosen, Munchen med Wchnschr, 1915, **62**, 321

[10] Saxl, P Ueber die Einwirkung pyrogenes Substanzen und Fieber abstr, München med Wchnschr 1916 **63**, 571

[11] Mitlander Budapest Letter, The Journal A M A, April 22, 1916, p 1320

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[19] Muller, R, and Weiss A Fieber Behandlung gonorrheische Komplikationen Wien klin Wchnschr, 1916, **29**, 249

[20] Wick Behandlung des Gelenkrheumatismus mit Einspritzung von Kollargol ins Blut, Munchen med Wchnschr, 1916, **63**, 350

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[22] Ziembowski, D Ueber den therapeutischen Wert parenteraler Milch Zufuhr, Med Klin, 1916, **12**, 1174

[23] Friedlander Therapeutische Erfahrungen bei parenteraler Injektion von Protein Körpern und ihren Spaltzproduction in die Augenheilkunde, Wien klin Wchnschr, *1916* **29**, *1321*

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[25] Strouse, S, and Frank, I Pollen Extracts and Vaccines in Hay Fever, The Journal A M A, March 4, 1916, *p 712*

injection the patient within a few minutes to one
has a chill, usually quite severe, with marked rise
mperature 104 to 105 F
rely does the rise in temperature persist for more
han a few hours, although in one instance a high fever
persisted for two days In several cases a second chill
as occurred from six to twelve hours after the injec-
n The patient suffers only the inconvenience that
ld come from a rise in temperature of this degree
times there is nausea and severe headache, the
er transient, the latter rarely persisting more than
ty-four hours Not infrequently an extensive
es may develop after the typhoid, colon or gono-
us vaccine and with somewhat greater frequency
r a meningococcus vaccine In acute arthritis it
ot unusual to note a most remarkable improvement
e joint symptom by the time the patient is through
ating Immediately after the injection there is
ally a slight leukocytosis which during the chill,
ops to normal or much below We have observed
leukopenia reaching 1,800 per cubic millimeter in
ne instance following a violent reaction The leuko-
enia is due to a reduction in the polymorphonuclear
ells. This period of leukopenia is brief and possibly
oes not always occur, although we have never failed
tect it when counts were made at frequent inter-
It is followed by a rapidly developing leukocy-
of the polymorphonuclear type, which reached its
imum in four to twelve hours, gradually returning
ormal in [illegible] twenty-four to forty-eight hours
s leukoc [illegible] may reach 100 000 or more, but as a
runs [illegible] 5,000 to 20,000 We have never
er [illegible] d eosinophilia, as has been noted in
[illegible] tions, nor have we seen any evidence
m, which is a constant accompaniment
aylact [illegible] k The blood pressure at
chi [illegible] lly moderately elevated, on
15 points, although in one
as noted This rise in pres-
scular contractions Imme-
is a rapid and decided drop,
out six hours after the injec-
eturning to normal A fall of
n Systolic and diastolic pres-
depressed, so that the pulse
e at all periods of the reac-
received repeated injections,
ction after such successive
ked

ons are not free from danger
r service at the Cook County
ted 200 patients without any
h the exception of one case, an
coholic, who following the injec-
m tremens and died about fifty-
injection In three other patients,
ed delirium developed soon after
one instance continuing for thirty
a and cyanosis were noted in a few
urine never showed more than a transitory
a This absence of unfavorable conse-
was probably due to certain precautions
d by experience Each new supply of vaccine
refully tested out in order to determine a safe
ge Patients with hypertension, marked valvular
ons or myocardial changes were not injected
en the infection was very acute, as shown by the
perature, the dosage of vaccine was reduced After
our experience with the delirium tremens patient, marked alcoholics were not treated

The literature contains reports of several fatalities, all apparently in typhoid patients Sladek and Kotlowski[26] report one, and Eggerth[27] one—both from intestinal hemorrhage Biedl[28] reports two deaths in typhoid from uncontrollable epistaxis Föchler[29] noted an epileptiform convulsion after the intravenous injection of an immune serum for gonorrhea in a gonorrheal case, and Arnold and Holzel[30] observed acute dilatation of the heart, with recovery after the use of the same agent Weichart[31] calls attention to the development of a proteinogenous cachexia in animals after the prolonged use of foreign protein

We have quite complete records of ninety-three cases of acute arthritis treated by intravenous foreign protein, with few exceptions in the form of typhoid vaccine Of this series, eighty patients were either relieved of their pain and soreness or greatly benefited by from one to four injections given daily Six showed only moderate improvement, and seven were not benefited, although receiving repeated treatments, in two cases eleven and thirteen injections, respectively In the majority of these there was no marked recurrence However, mild recurrences after apparent recovery are common, this taking place within twenty-four hours to ten days or more One patient with acute arthritis had six severe recurrences, although each time he was entirely relieved of pain and soreness after a single injection It would appear that these recurrences are due to reinfection of the joints, as not infrequently they appeared in joints not previously involved Apparently the effect of the treatment is confined to the infection in the joint, the primary focus escaping When an acute endocarditis was present as a complication, this was apparently unmodified by the treatment However, those who have treated gonorrheal arthritis report definite improvement in the urethral discharge, prostatitis, epididymitis, etc In one case with a complicating iritis, this disappeared after a single injection Müller and Weiss call attention to the difficulty of completely clearing up a gonorrheal infection by this method of treatment, as even in the midst of the treatment new complications may arise In order to determine whether repeated daily injections, continued for from four to six days, would lessen the frequency of recurrences, a number of patients in spite of the marked improvement following a single injection were given daily or every second day, further injections until a total of from four to six had been given Recurrences were noted less frequently when the treatment was given in this manner, but could not by any means be entirely avoided Kinsella[32] has shown that the sterilization of the blood in streptococcus endocarditis after a chill excited by transfusion with defibrinated blood or impure salt solution, was of short duration, namely, twenty-four hours Evidently in his cases the primary source of the blood infection was not eradicated. One of our patients with a subacute arthritis had been little benefited by foreign protein injection and had also proved resistant to salicylates. This patient developed a lobar pneumonia during which his arthritis permanently disappeared. Another patient with a gonorrheal arthritis had been treated with proteoses, typhoid and gonorrheal vaccine, with but little benefit. In the hospital he developed a tonsillar abscess, with temperature of 102 F., and within a few days the arthritis had disappeared. The behavior of the acute arthritides to foreign protein is not unlike that of profuse sweats observed after large doses of salicylate, as after either of these means marked amelioration of symptoms may be observed. Frequently, however, in spite of continuance of the treatment, recurrences will take place, or, in case the treatment is discontinued, acute joint soreness soon redevelops.

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[27] Eggerth Ueber die Behandlung des Typhus abdominalis mit Typhus Vakzine, Wien klin Wchnschr 1915 **28**, 209

[28] Biedl A Therapeutische Verwendung von Typhus Impfstoffen beim Menschen Prag med Wchnschr 1915 **40**, 53

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[30] Arnold A. and Holzel H Ueber den Wert intravenoser Arthigonin Injektionen bei Gonorrhoischen Prozessen Munchen. med Wchnschr 1914, **61**, 1967

[31] Weichart W Beitrage zur Proteinkörpertherapie Wien klin. Wchnschr 1916 **29**, 1611

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Thirty-three of our acute arthritides patients had been under active salicylate treatment, before receiving the foreign protein, without benefit. All but four of these were promptly, at least temporarily, greatly benefited by the typhoid vaccine.

Eighteen patients with subacute arthritis received the treatment. Fourteen of these were definitely benefited. Recurrences here were common, but in connection with the protein, an effort was made to clear up any foci of infection. Four weeks after the treatment several of these patients had not suffered from a relapse.

Twenty-eight patients with chronic arthritis received the treatment. Only those were treated in whom there was definite evidence of acute recurrence of the infection. Definite temporary improvement was quite frequently observed, and in a few cases, one of two years' duration, the patients received such benefit that they were able to return to work. The results on the whole were sufficiently suggestive to warrant a continuance of the treatment in selected cases.

The chief difficulty in this form of therapy is the violence of the reaction. An important question is the relation of this reaction to the beneficial action of the foreign protein. It has been our experience that when an injection was not followed by a chill, although there might be a marked leukocytosis, no definite beneficial results have been observed. Very large doses of protein intramuscularly also failed to produce the definite immediate results observed after the intravenous use. This does not exclude, however, the possibility that the disease was modified or that in case the injections had been continued for a period of time improvement may have resulted. Others have reported the same experience. Muller and Weiss report that in gonorrheal complications the proprietary immune serum for gonorrhea used by Fochler, when given in doses of 0.1 c.c. intravenously, will bring about marked amelioration of symptoms, while 0.5 c.c. intramuscularly has little if any effect. The German observers who have used milk intramuscularly report good results with moderate reaction. The reaction, however, is much more marked than that observed when vaccines in large doses are given in the same manner. Muller and Weiss, after the intramuscular injection of milk, report a temperature of from 103 to 104 F. Friedlander, who used this treatment in trachoma, reports that he did not observe a temperature above 101 F. and in many patients in whom good results were obtained, the temperature was only a little above normal. It is, however, the consensus of opinion that marked temperature reactions are associated with good results. The various observers have all laid stress on this point and many consider the fever as the essential factor in the curative action. The Germans are now referring to this method of treatment as febrile therapy, believing that any agent that will cause a rise in temperature may give results.

The nature of the reaction responsible for this suddenly developing immunity has not been determined and it may be due solely to the temperature reaction and the various agencies of immunity excited by it. It is too early to state whether or not this method of treatment will become a permanent therapeutic measure. The results so far obtained would make it appear that it cannot be entirely discarded.

The chief objection to its continuance is the danger of grave or fatal reaction. Its careless administration must be carefully guarded against. This form of therapy must be considered as still in the experimental stage, and should not be generally applied without first a careful consideration of the dangers associated with it. If used, the toxicity of the particular vaccine must be determined, and the patient carefully examined especially for cardiovascular pathologic conditions. Failure to observe proper precaution may place this treatment in unwarranted disrepute. If the results now observed could be obtained without the violent febrile reaction, it would seem that this method of treating acute arthritis is superior to salicylate or other means at present employed.

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ABSTRACT OF DISCUSSION

Dr. Jacob Diner, New York: I do not quite understand whether the essayist refers to intravenous vaccine therapy or vaccine therapy at large. These are two different factors. In relation to the intravenous method we are justified in speaking of nonspecificity. I can understand the nonspecificity of vaccines intravenously, but when given otherwise we are confronted with a different proposition and I do not doubt that here different proteins will bring about different results. No doubt vaccines have a better field in prophylaxis and in chronic diseases than in the acute diseases. I should like to ask whether Dr. Miller refers to stock or autogenous vaccines in arthritis, and if autogenous, from what source he obtains the organism? The dose of vaccines is also important. The majority of physicians go by the label on the package. The importance of graded doses in the individual case cannot be too much emphasized.

Dr. John F. Anderson, New Brunswick, N. J.: I should like to ask if Dr. Miller uses protein such as egg white, or the protein prepared from some of the cereals.

Dr. Abraham G. Shortle, Albuquerque, N. M.: I should like to ask if Dr. Miller has had any anaphylactic reaction on two, three or four doses. As the first gentleman said, it would seem to me that the use of vaccines in the skin and intravenously are two different matters. In using vaccines intradermally for a number of years I have been convinced that there is a certain specific action in the mixed infections of tuberculosis. It is not as satisfactory as we wish, but in observing numerous cases there is a certain percentage in which we find the sputum and temperature decrease and the mixed germs decrease, and I think there is some truth in the statement attributed to Dr. J. B. Murphy, "that no one ever dies of tuberculosis." I take it that he meant that they die of secondary infections. We feel that vaccines have done good in a certain proportion of the mixed infections, though as in all treatments for tuberculosis the good is not nearly so marked as we would like.

Dr. Russell L. Cecil, New York: During the past winter I treated about forty patients with acute arthritis in the wards at Bellevue Hospital with intravenous injections of vaccines. In thirty-three cases of acute arthritis I think probably 90 per cent were cases of rheumatic fever The others were cases of toxic arthritis There were seven cases of gonorrheal arthritis The vaccine used was typhoid vaccine, except in the gonorrheal cases, in which I used the New York Board of Health gonococcus vaccine I found that the latter, just as the former, produced a chill and rise of temperature Of the thirty-three cases of acute arthritis which were not gonorrheal I think thirteen patients recovered completely without any help from salicylates In the other cases of acute arthritis we felt it was necessary to supplement the vaccine treatment with salicylates Nearly all of the patients were improved by the vaccines but they showed a tendency to relapse Many patients were relieved of their joint symptoms but complained of pain in the back and neck and we gave salicylates to relieve this All the gonorrheal patients were treated with gonococcus vaccine except two who received typhoid vaccine They all improved slowly, without any apparent influence from the vaccine

Dr Torald Sollmann Cleveland I should like to emphasize a point which has been made in a way but which may be overlooked, namely that the term vaccine therapy" is apt to be misleading Apparently we are not dealing with immunity reactions but with a pharmacologic reaction, the use of the vaccine being merely a method of producing this reaction It will be interesting to learn whether similar reactions and similar cures cannot be secured by nonprotein pyretic agents The change in the disorder occurs as a response to the abnormal temperature, and is distinct from an ordinary vaccine reaction

Dr. Fred I Lackenbach San Francisco I would take advantage of Dr Miller's paper to clear up confusion in the previous discussion in regard to the antipneumococcic serum It appears that certain groups of pneumococci will not be influenced by serum prepared from other groups For instance a pneumococcus infection caused by Group III will not be influenced by antipneumococcus serum which represents only Group I This serum is an animal fluid, it is a blood serum and not a vaccine One must determine the type of pneumococcus and then obtain the proper serum The whole subject of specific and nonspecific immunization is extremely perplexing

Dr. Walton F Dutton Tulsa Okla Just so sure as we have a prophylactic vaccine for typhoid the time is not far distant when we will be able to isolate the particular strain which causes typhoid in a patient Rarely are two cases of typhoid alike, and we know that at all times they are caused by different strains of bacteria The cure of typhoid by use of autogenous vaccines is not far off It is just as nearly possible to cure typhoid by the use of the specific protein as by the nonspecific.

Dr. R G Torrey, Philadelphia Has Dr Miller any data regarding the influence of these injections on the development of cardiac disease? In acute rheumatism the joint involvement is negligible as regards danger of permanent change, and the question of particular interest although the point about which we hear little, is the question of cardiac damage. Last summer with my residents Drs Francis and House, I treated a series of twenty-nine patients with acute and chronic arthritis either by injections of bacterial preparations, or the intravenous injection of formaldehyd solution, which gives a similar constitutional reaction In the acute cases the effect on the arthritis and acute symptoms was favorable beyond our expectations but we have not yet been able to draw any conclusions as to the influence of this mode of treatment on the development of disease of the heart.

Dr. Cleon W Symonds, New York I should like to ask if Dr Miller does not think that the results he gets from these vaccines are not due entirely to the temperature produced by the reaction as in the tonsillitis and pneumonia cases to which he referred? Also whether he desires to get a high reaction and whether his results are in proportion to the amount of elevation of temperature he gets with the injections?

Dr. W W Tompkins, Charleston, W Va. I should like to ask if in these cases of arthritis Dr Miller permits his patients to be up and around? A man may have arthritis of the elbow or wrist and in a sense can be comfortable, whereas if he had a corresponding degree of arthritis in the ankle or knee he would almost be compelled for his own comfort to go to bed The question has been asked in regard to the relative degree of the cases which are complicated with heart disease Does it not devolve on the physician to see and emphasize and insist on these patients going to bed, thereby protecting themselves?

Dr W A Womer, New Castle, Pa I should like to relate our experience with the use of vaccines with respect to the nonspecificity or use of them in pneumonia, typhoid fever and arthritis We find the various strains of vaccines vary as to the effect on the patient and it does not make any difference in regard to the temperature, as some with high temperatures have poor results, and some with low temperatures good results I have tried streptococcus, pyocyaneus colon and staphylococcus, etc, and find some of the vaccines useless while others will produce a reaction

Dr Joseph L Miller Chicago In regard to the question whether vaccine given intracutaneously might act differently than when given intravenously, this may be true, but we consider it only a difference in the rapidity of absorption We have tried to see whether we can bring about good results by large doses of vaccines intramuscularly and are still working on it It is true that German investigators are using milk intramuscularly with good results, and in studying their records we find they report benefit in patients with mild reactions The general opinion is, however, that a good reaction is essential There is evidence in the literature regarding the nonspecificity of vaccine when used subcutaneously Fraenkel, in 1903 used large doses of killed typhoid bacilli in treating a series of typhoid fever patients and reported good results, one or two of his cases terminating by crisis His assistant repeated this test on other series, using *Bacillus pyocyaneus* and reported clinically good results The question of the reaction which Dr Sollmann has mentioned, is interesting I believe the term "protein therapy' is not correct The Germans use the term 'febrile therapy" for anything which produces a rise in temperature may accomplish the same purpose Mention was made by one speaker as to getting results where the reaction was mild Our experience has been that a good reaction is essential in order to obtain striking results As to vegetable protein, we used a pollen protein in some cases of arthritis but there was a great deal of difficulty in getting the right dosage in order to bring about a chill, but when we obtained it we got the same result as with any other protein Along the line of this is the work of Frank and Strauss who treated hay-fever with staphylococcus vaccine and reported results which compared favorably with those obtained with pollen vaccine. Anaphylactic reactions we have never observed Regarding the symptoms, we have never observed anything that might not occur with the initial chill of any acute infection, and the dangers observed, provided precautions are taken in regard to dosage, are no greater I do not think that the patient with severe arthritis is especially uncomfortable during the chill, and on questioning them they do not complain of pain in their joints as a result of the shaking We have been unable to determine whether this mode of treatment lessens the frequency of endocarditis In patients who have an endocarditis with arthritis we have never seen any results on the endocarditis

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Card Rating System for Food Handlers—In Portland, Ore, the board of health has adopted a system of rating stores handling food products of any kind, with reference to the sanitary condition of such stores A store whose sanitary condition, according to the inspection of the health board, averages 90 per cent or better is given and is required to display a card showing that its rating is "A." Shops averaging only up to 80 per cent. are required to display a "B" card, and those rating under 80 per cent. a C." The card must be displayed so that every patron may see it, and the regulation is enforced by frequent inspections As might be expected a noticeable improvement has been made in all shops, each merchant being anxious to get an "A rating An advertising point is made by the merchant of a good rating, and customers profit by improved sanitary conditions

ARTHRITIS AND FOREIGN PROTEIN

CHRONIC RHEUMATISM RELIEVED BY INTRAVENOUS INJECTIONS *

HENRY BASCOM THOMAS, M D
CHICAGO

Patients with chronic arthritis present a more vital problem in economy to the tax payers of the city and county and to the private hospital than almost any other cases Their relative number for admission is large, and their stay is usually very long There were 161 acute and 160 chronic arthritic patients in the County Hospital last year St Luke's does not admit chronic cases as a rule, yet many arthritic patients constantly receive careful and prolonged care there Finally, many of these patients must go to the county or state poorhouses or homes for incurables when they have worn out their welcome in the city institutions

In the spring of 1916, several patients with chronic [illegible]tis appeared on my service at the County Hos[illegible] They gave a history of treatment by "shots into [illegible] vein of something which made them chill and relieved their pain" They proved to be some of the first patients with intravenous injections of typhoid vaccine by Miller and Lusk,[1] whose first article on this new treatment appeared in June, 1916

Anything which held promise of relief for chronic rheumatism was extremely attractive, and when advocated by experienced men, seemed worthy of an immediate trial

A government strain of typhoid vaccine made by Dr Moody at the laboratories of St Luke's Hospital was used in the cases which form the bases of this report

It seems to be fairly well established that typhoid vaccine in arthritis does not relieve symptoms by forming antibodies, that it is not a specific therapeutic agent, but that the benefit is derived from the protein carried in the dead bodies of the bacteria which are thought to produce a rise of temperature and hyperleukocytosis, just as other proteins like milk, proteose, horse serum, chicken serum, and sodium nucleinate are thought to do

In March, 1916, Muller and Weiss,[2] using the vaccine treatment in cases of gonorrheal arthritis, advanced the view that the beneficial effects produced by the vaccine therapy are due to the induced fever, or at least that the fever is a weighty component in these effects, and that the favorable effects are not due, or not mainly due, to the development of specific antibodies They also state that the therapeutic effects seem to be greater the higher the degree of induced fever, and this is confirmed in my experience See the case of H S below

Jobling and Petersen,[3] in speaking of the nonspecific factors in the treatment of disease, say

> It seems probable that the fundamental change on which the majority of [these] biologic reactions are based is one of colloidal dispersion, in that the injections bring about a less dispersed state affecting not only the serum proteins but also the serum lipoids Such an alteration is sufficient to account for the fluctuations in the ferment-antiferment balance, and in the coagulation mechanism, as well as in the opsonic and complement powers of the serum, although it does not at present explain the increased antibody titer With this as a basis we can understand that so many and diverse substances can bring about a reaction almost identical clinically and therapeutically But here, as in so many other biologic problems which have to do with that most complex of tissues, the blood, it seems probable that *no single* factor can be identified as responsible for all the changes which occur, but that a whole train of events is inaugurated when the equilibrium of some of the delicate serum balances is disturbed, all of which tend toward a condition favorable for recovery from infection

A large percentage of the patients under discussion had subacute and chronic cases, with beginning and advanced joint changes — hard working, ill fed and poorly cared for persons who sought the hospital as a last resort

Table 1, of twenty cases of the series, gives an idea of the average age, nationality, occupation, civil state and examining-room diagnosis

Rest in bed and a search for and elimination of the focus of infection is made a prerequisite to the injections in all cases, save in those in which the patients need the immediate relief from suffering which the vaccine gives These have the treatment at once If a sufficient interval has elapsed since the last meal, say six or seven hours, the gastro-intestinal reaction is less severe, and the patient less uncomfortable

TABLE 1—DATA IN TWENTY CASES

Patient	Age	State	Nationality	Occupation	Examining Room Diagnosis
M S	39	Widow	U S A	Laundress	Arthritis of hip
J D	42	Widow	U S A	Nurse	Multiple arthritis
I S	54	Widow	Irish	Housework	Hallux valgus and arthritis
L Z	56	Married	German	Housework	Arthritis deformans
M C	42	Widow	Lithuanian	Janitress	Chronic ostearthritis
E C	55	Widow	U S A	Housework	Chronic arthritis
T S	28	Single	U S A	Clerk	Multiple arthritis
G E	22	Single	U S A	College	Multiple arthritis
M C	29	Married	German	Clerk	Multiple arthritis
A. P	44	Married	Hungarian	Laborer	Chronic arthritis
J S	53	Married	German	Laborer	Ostearthritis
A R	36	Single	Russian	Laborer	Pes planus, chronic arthritis
C H	54	Married	Swedish	Laborer	Hallux valgus, arthritis
H G	32	Married	German	Laborer	Ostearthritis
J O	42	Married	Austrian		Arthritis deformans
H W (colored)	32	Married	U S A	Laborer	Gonorrheal spurs, flat foot
R T (colored)	18	Single	U S A	Domestic	Arthritis
H R	23	Married	Russian	Factory	Arthritis
A A	54	Married	Italian	Laborer	Gonorrheal arthritis
G L	49	Single	Norwegian	Iron Molder	Flat feet, arthritis

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* From the Orthopedic Clinics of St Luke's Hospital and the County Hospital

* Read before the Section on Orthopedic Surgery at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

[1] Miller, J L., and Lusk, F B The Treatment of Arthritis by the Intravenous Injection of Foreign Protein, THE JOURNAL A M A, June 3, 1916, p 1752

[2] Müller, R, and Weiss, A Fieberbehandlung Gonorrhoischer Komplikationen Wien. klin. Wchnschr, 1916, 29, 249

[3] Jobling, J W, and Petersen, William The Nonspecific Factors in the Treatment of Disease, THE JOURNAL A M A, June 3, 1916, p 1753

In seeking the cause of the arthritis, the following possible sites of infection were kept in mind, tonsils, teeth, gums, sinuses, ears, eyes, urethra, prostate, gall-bladder, heart, gastro-intestinal tract, organs of female pelvis, etc

In a few of the cases there was no demonstrable focus In one patient who had a most severe multiple ostearthritis affecting practically all joints, and who killed himself by taking poison, an exceedingly careful postmortem, in which particular attention was given to the urethra and prostate, revealed no cause for the crippling joint condition Many other cases which I am in the habit of calling clean because the patients present at a glance a favorable hygienic condition — white, clean teeth and pink, hard gums — present no clue which enables us to find a focus of infection My experience causes me to raise the question whether an obscure infected gland cannot do as much damage as a bad tonsil or an ulcerated tooth

In subacute and chronic cases of ostearthritis one will make no mistake if he prescribes 50 million typhoid vaccine intravenously, and in those cases which react only moderately cautiously raises the amount at intervals of two or three days to 75 million bacteria at an injection

In eighty-six subacute and chronic cases treated, I have not yet seen harm done or alarming symptoms result from this treatment Indirectly, several fatal cases have come to my attention, but they were, in my opinion acute cases with alarming coexisting illness, and therefore should not be used as arguments against the free use of the vaccine in the general run of subacute and chronic cases coming to the attention of the orthopedist Moderately advanced heart and kidney disease and tuberculosis of the lungs have not been considered sufficient reason for withholding the protein, but these diseases have been looked on as demanding carefulness in (*a*) the preparation of the patient, particular care being taken that the stomach is empty for several hours before the injection, and (*b*) the administration of a small initial dose, this to be increased gradually, but only after all the disagreeable symptoms of the former injection have disappeared and the appetite has returned

TABLE 2—PROTOCOL OF CASE 1

	Temperature	Pulse	Respiration
6-29 16 7 30 75 million			
Leukocyte Count			
Before injection 13 600	98	76	20
Four hours later 13 950	97 2	64	20
Twenty four hours later 13 800	97 4	60	20
No reaction to injection			
7 6-16 4 30 75 million			
Leukocyte count	Temperature	Pulse	Respiration
Before injection, 14 200	98 8	76	20
Three hours later 12 000	101 2	112	22
Sixteen hours later 20 000	99	80	20
Eighteen hours later 12 200	98	76	18

RESULTS OF THE VACCINE

These may best be described under three heads (1) the immediate effect, (2) the early relief from pain, and (3) the end-results of the treatment

1 *Immediate Effect*—This is an uncomfortable feeling which ranges from slight to very severe, accompanied by a chill, rise of temperature and emesis The marked reaction is usually not so evident in the chronic as in the acute cases The gastro-intestinal symptoms are less marked in cases of equal chronicity in which food has been withheld for four or six hours before the injection The temperature charts in old cases frequently show a higher fever following the second and third injection

Case 1—H R, who showed no reaction to first injection, reacted to second with temperature of 101.2 and leukocytes 20,000 Dates of injections, leukocytes, temperature, pulse and respiration are shown in Table 2

There was headache and nausea in two hours Emesis in two hours, forty minutes Severe headache in twenty-eight hours

Case 2—H S was injected for the first time July 25, 1916, at noon The temperature rose to 104 4 F, at the second injection it reached 106 F Cyanosis developed This represents the most severe reaction among my patients Unfortunately the blood counts were not taken Part of the record is given in Table 3

TABLE 3—PROTOCOL OF CASE 2

	Temperature	Pulse	Respiration
75 million at noon	99	92	18
Pain in feet and head 11 03	2	120	24
Pain in feet and head 2 p m	104	120	24
Severe headache at 3 p m	104 4	124	22
Feels better at 6 p m	103	120	22
Head and feet pain at 8 p m	104 4	120	28
Injection 7 27 16 1 p m 75 million	99 4	100	26
Chill cyanosis nausea, emesis at 2 p m	105	100	26
Headache 3 30 p m	106	140	28
Discharged 8 30 16 Recovery			

2 *Early Relief from Pain*—The practically complete relief from all joint pains and the optimism of the patient a few hours after the vaccine are most striking and pleasing factors in virtually all these cases The patients feel cured They are encouraged and hopeful Following an interval of two days the pain usually reappears, but this interval decreases with the number of injections After from twelve to twenty-four treatments over a period of from one to two months, these patients are in most cases able to leave the hospital as cured Attention is, of course, given to any operative need the case may present, such as heel-spurs, and to proper balance

3 *End-Results of the Treatment*—These are not as satisfactory in my cases as Miller and Lusk report in their papers The relief of pain has not been permanent in more than 30 per cent of the patients treated The remaining cases, however, have done much better than previously treated cases, and I consider this method superior to others I have used The marked alleviation of symptoms and small percentage of dangerous results must eventually force it into more general use

30 North Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr Walter G Stern Cleveland The injection of a large amount of foreign protein into the blood stream is, of course not without danger, but anything that promises relief in this (always intractable) class of cases is worthy of discussion I have had no experience in the treatment of gonorrheal arthritis with typhoid vaccines yet I cannot conceive how the typhoid vaccine protein would be superior to the gonorrheal vaccine protein especially that of the strain used for the complement fixation test Gonorrheal vaccine used subcutaneously never succeeded in curing acute gonorrheal arthritis, but it may be that the intravenous exhibition would be more efficacious The clinical results from the use of foreign protein in chronic hypertrophic arthritis may be divided into three distinct stages (1) the stage of damage from the injection of foreign protein, as shown by increased rigors, nausea, rise of temperature and a higher leukocyte count, (2) the stage of improvement in symptoms familiar to all of us who have tried to treat arthritis by any means, we have all in the past used injections of the thymus and other glands of internal secretion, and in almost all instances the patients say that they are better, and they are better for the time being, (3) but then comes the sad third stage of relapse and in my experience in the use of typhoid vaccines the third stage here is the same as in the use of injections of the organs of internal secretion Some patients do well with injections of thymus, and then relapse, and it is the same with injections of pituitary gland I am sorry to have to confess that in all my cases but one, the third stage after the typhoid vaccine injections was the same as the third stage after injections of any of the organs of internal secretion The successes of Drs Thomas and Miller with the typhoid protein are, however, so striking that I feel the proposed treatment is worthy of an extended trial

Dr R O Meisenbach, Buffalo I should like to ask Dr Thomas whether the patients that he has been treating had been having an elevation of temperature over a long period say two months

Dr Henry B Thomas, Chicago It is not a question of the kind of vaccine, dead bodies of bacilli, some kind of foreign protein, put into the circulatory system will cause the reaction There is no advantage claimed for the typhoid vaccine over the gonorrheal or other vaccines containing foreign protein With regard to the temperature, some of the subacute cases ran a moderate temperature, but most of them did not show as much temperature as the acute cases

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THE RÔLE OF HEPATIC TISSUES IN THE ACUTE ANAPHYLACTIC SHOCK[*]

W H MANWARING, MD
Professor of Bacteriology and Experimental Pathology, Leland Stanford Junior University, School of Medicine
AND
HAROLD E CROWE, AB
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STANFORD UNIVERSITY, CALIF

The anaphylactic reaction is undoubtedly a reaction in which all tissues and all organs of the body take part The clinical picture is presumably a physiologic balance between various anaphylactic and antianaphylactic mechanisms The clinical control of anaphylaxis, as well as the ultimate development of anaphylactic theory, would necessitate an understanding of the nature of the reaction in each of the physiologically important tissues The present investigation is an attempt to determine the nature of the reaction in hepatic tissues

MATERIAL AND TECHNIC

The livers of normal and anaphylactic guinea-pigs were repeatedly perfused with dilute foreign protein, either in Locke's solution or in defibrinated normal or anaphylactic blood The resulting changes in the toxicity of the perfusion fluid were estimated by subsequent tests with isolated anaphylactic lungs[1]

In making the pulmonary test, the ductus arteriosus is ligated, and a citrated cannula is tied into the pulmonary artery, delivering the perfusion fluid under constant pressure and temperature After passing through the pulmonary blood vessels, the fluid is allowed to escape from the open left auricle During the perfusion, the lungs are alternately expanded and allowed to collapse by air forced into the tracheal cannula, in a manner simulating the normal respiratory movements Note is made of the resulting changes in resistance to inflation, and in the promptness and completeness of the expirating collapse

Normal Lungs—If normal guinea-pig lungs are thus perfused with Locke's solution or 50 per cent defibrinated normal guinea-pig blood containing even as high as 20 M L D[2] foreign protein, no distinct changes in the pulmonary elasticity are produced The lungs are readily inflated, and collapse promptly, and completely, till the end of the test (seven to ten minutes)

Anaphylactic Lungs—If anaphylactic guinea-pig lungs are similarly tested with from 0 5 to 1 M L D foreign protein in Locke's solution or in 50 per cent defibrinated normal blood, the lungs are invariably thrown into a typical anaphylactic response After a latent period of from twenty to forty-five seconds, a slight resistance to inflation is usually observed, together with a slight slowness and incompleteness of the expiratory collapse The reaction progresses rapidly, and usually ends in a complete pulmonary fixation or immobilization by the end of from seventy-five seconds to two minutes At the end of the reaction, the lungs are of a liver-like consistency They can neither be further dilated nor collapsed by changes of air-pressure in the tracheal cannula

1 NORMAL LIVER

If the liver of a normal guinea-pig is repeatedly perfused with 0 5 to 1 M L D foreign protein, either in Locke's solution or in 50 per cent normal or anaphylactic blood, no distinct change in the toxicity of the perfusion fluid is observed on subsequent tests with isolated anaphylactic lungs Slight increases or decreases in the length of the latent period are sometimes noted, but in no case is the latent period shortened or prolonged more than a few seconds There is never a loss of the promptness or completeness of the subsequent pulmonary fixation[3]

The normal guinea-pig liver, therefore, has no appreciably detoxicating, or antianaphylactic, action on foreign protein, either tested alone or mixed with normal or anaphylactic blood

2 ANAPHYLACTIC LIVER

If the liver of an anaphylactic guinea-pig is similarly perfused with from 0 5 to 1 M L D foreign protein in 50 per cent anaphylactic blood, the perfusion fluid usually loses completely or almost completely its power to produce an anaphylactic response in subsequent tests with anaphylactic lungs While control tests with unperfused protein mixtures may give complete pulmonary fixation within seventy-five seconds, anaphylactic lungs tested with the perfused mixture usually remain elastic and fully collapsible, till the end of the test (from seven to ten minutes)

The anaphylactic guinea-pig liver, therefore, has a marked detoxicating, or antianaphylactic, action on a specific foreign protein blood mixture

Mechanism—If the anaphylactic liver is repeatedly perfused with from 0 5 to 1 M L D foreign protein in Locke's solution, no reduction in the toxicity of the perfusion fluid is observed on subsequent tests with anaphylactic lungs

The detoxicating action of the anaphylactic liver is, therefore, not due to a direct action of the hepatic tissues on the foreign protein

If the anaphylactic liver is repeatedly perfused with from 0 5 to 1 M L D foreign protein in 50 per cent normal blood, a reduction in toxicity invariably takes place The reduction, however, is only occasionally sufficient to prevent completely the anaphylactic response in subsequent tests with anaphylactic lungs It is never as complete as in perfusions with anaphylactic blood mixtures

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[*] Read before the Section on Pathology and Physiology at the Sixty Eighth Annual Session of the American Medical Association, New York June, 1917

[1] W H Manwaring, and Yoshio Kusama (Jour Immunol, 1917, 2, 157) give a sketch of perfusion apparatus

[2] M L D = minimal fatal intravenous dose for a sensitized guinea pig

[3] W H Manwaring and Harold E Crowe (Jour Immunol, 1917, 3) give data

The detoxicating action of the anaphylactic liver is, therefore due to a functional cooperation between the sensitized fixed hepatic cells and certain circulating normal and anaphylactic blood elements

Chemical Changes—Parallel precipitin titrations of perfusion fluids, before and after repeated passage through the anaphylactic liver show that there is no appreciable change in the amount of the foreign protein in the perfusion fluid as a result of the liver perfusions[4]

The loss of the toxicity of the perfusion fluid is, therefore, not due to a removal or destruction of the foreign protein by the fixed hepatic cells

On repeated passage through the anaphylactic liver, the perfusion fluid not only loses its power to produce the anaphylactic pulmonary reaction, but acquires a new power, that of causing an unusual relaxation or loss of tone in the pulmonary tissues The lungs tested with the perfused fluid collapse more promptly and completely than normal The edges of the lobes curl over, giving a wilted or flabby appearance on expiration There is also a loss of the occasional power of the perfusion fluid to cause vasoconstriction

The detoxicating action of the anaphylactic liver is, therefore, accompanied by and may possibly be due to an explosive formation or liberation of vasodilator and bronchodilator substances by the liver

This finding is in harmony with analyses of the anaphylactic reaction in the dog[5] The pronounced fall of blood pressure, which is the essential feature of the acute anaphylactic shock in the dog, is not due to a direct action of the foreign protein on the sensitized blood vessels, but is an indirect phenomenon, due to the explosive formation or liberation of vasodilator substances by the liver

CONCLUSIONS

The agreement between the foregoing findings would suggest that the explosive formation or liberation of vasodilator and bronchodilator substances by the sensitized liver is an essential feature of the acute anaphylactic reaction in all animals

The demonstration of a functional cooperation between the sensitized hepatic cells and certain circulating blood elements, in the detoxication of foreign proteins, calls attention to the possibility of similar cooperations being operative in other antitoxic actions

ABSTRACT OF DISCUSSION

Dr. A A. Eggstein, Nashville, Tenn Will the foreign protein anaphylactic blood mixture, after having been perfused through the lung, cause the immobility of lungs of other sensitized guinea-pigs, or is the liver the chief organ in the detoxicating effect on the mixture? Will anaphylatoxin, proteoses, and other toxic proteins have an immobilizing effect on the lung of a normal guinea-pig?

Dr W L McFarland, New York If my memory is not false I think that something along similar lines was said, so far as the liver is concerned, at a meeting before the Serologic Society several years ago So far as the action of the liver in anaphylaxis is concerned, I have had no personal experience, but in connection with immunity and the formation of antibodies, at the Institute in Copenhagen six or seven years ago we injected a number of rabbits and goats in branches of the mesenteric vein for the production of agglutinin and found that there was practically no difference in the amount produced or in the rapidity of the production By that method the liver seemed to have no influence

Dr W H Manwaring, Stanford University, Calif There are a number of observations in the literature that point to the liver as having a marked detoxicating function in the acute anaphylactic reaction Our studies have shown that this antianaphylactic action is not merely an expression of normal hepatic functions, but is largely due to a new, acquired liver function, developed as a result of the process of protein sensitization To what extent the other tissues of the body share in this antianaphylactic function is a phase of the problem on which we are at present working

Tests with protein split products give inconclusive results due to the fact that such a large variety of foreign substances is capable of causing reactions in the isolated guinea-pig lungs

FAMILIAL HEAD NYSTAGMUS IN FOUR GENERATIONS ASSOCIATED WITH OCULAR NYSTAGMUS *

N S YAWGER, MD
PHILADELPHIA

Combined nystagmus of the head and eyes, persisting during life and reappearing in consecutive generations, must be exceedingly rare, since we seldom find mention of this disorder

The family reported in this article is of Russian Jewish nationality, and at least four generations of the family have shown the affliction, members of three of which I have examined The features of these cases are the persistence of the associated nystagmus in the stock and throughout the lives of the individual members, together with certain other nervous manifestations, notably, stammering Both sexes had the combined nystagmus and both transmitted it to their children

FIRST GENERATION

From the fact that two brothers exhibited the condition, it is possible that other instances of nystagmus preceded them Concerning one brother, we have no additional information The other died at 86 years, and notwithstanding his disease is said to have had good vision His descendants I have traced

SECOND GENERATION

There were eight children, three sons and five daughters Most of them died in early life, and I have been unable to gather any clinical data respecting them One daughter who had nystagmus lived to be 80 years old Another daughter did not have the disorder, although she transmitted it to her two sons, and it is interesting to note that these children were by different husbands This Russian peasant woman came to America when she was 60 years old She is still active although now 78, and has given me the details regarding the family history

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[4] W H Manwaring, Yoshio Kusama and Harold E. Crowe (Jour Immunol. 1917, 3) give data

[5] Manwaring W H. Ztschr f Immunitatsforsch u. exper Therap, 1910 8, 2 The dogs here studied were adult street dogs sensitized by a single subcutaneous injection with from 5 c.c. to 25 c.c. horse serum kept in outdoor kennels at winter temperature (London), and tested at the end of from fifteen to thirty days. It is, of course, possible that additional factors may be operative in more highly sensitized young dogs or puppies.

* From the Department of Neurology University of Pennsylvania, School of Medicine.

* Read before the Section on Nervous and Mental Diseases at the Sixty Eighth Annual Session of the American Medical Association New York, June, 1917

THIRD GENERATION

It is in this period that the afflicted persons became available for study Of three children, the daughter is normal and has no family, while the two sons, who are half brothers, exhibit the combined nystagmus The elder patient, aged 48, is distinctly neuropathic, as a child he stammered badly, and eight years ago he had an attack of facial paralysis He has been nystagmic from infancy, but during adult life the manifestations have been less apparent The patient is not conscious of the head shaking, although the phenomenon often recurs several times a day Suddenly, and usually during moments of abstraction, the head undergoes a series of horizontal, *coordinated movements*, consisting of five or six oscillations, of considerable amplitude and with an approximate frequency of twenty per minute

No opportunity has been afforded to observe the eyes at the time of the head movements The irises are brown The ocular tremor has seldom been spontaneous since childhood, but it may be brought out by any extreme movement of the eyes The oscillations are horizontal, the range is greatest when looking toward the left, and the speed, though irregular, is about 160 per minute He has eight children who shall be referred to later

The younger brother, aged 40, has exhibited nystagmus of the eyes from birth and of the head for the past five years He is a tailor, enjoys excellent health, and has good personal habits except for incessant smoking He is slightly dwarfish, his neck and thorax being disproportionately short Though not subjectively aware of his head movements, he has been told that they occur many times a day When looking in a mirror and with his attention directed toward the phenomenon, it is never manifested The oscillations, which appear in series, are usually made up of ten or twelve individual movements, they are always horizontal, and impress the observer as a repeated sign of negation While of less amplitude, the individual movements are more rapid, and the series recurs with greater frequency than do those of his half-brother The speed is about 120 per minute

Although he labors long hours at exacting work, he has not yet worn glasses The irises are brown An almost constant unsteadiness of the eyes is seen, and this is intensified by all extreme ocular movements, but the direction is invariably horizontal The rate of movement is about 200 per minute

His head nystagmus, though embarrassing, is not without its humorous side, and in childhood afforded much amusement to the schoolchildren A customer entered his tailor shop to order clothes, and just then the dissent spasm occurred *The customer in surprise* asked, "You do not wish to sell me again?" On another occasion, a collector called and, observing the persisting sign of negation, exclaimed, "You say no! You won't pay?"

FOURTH GENERATION

In the family of the younger brother there are two sons and one daughter The older son, aged 16, shows no stigmata and has the mental alertness not uncommon to the Jewish race The other children, who are twins, are undersized, rather delicate, and the boy is of slightly lowered mentality The sister, aged 10, alone shows nystagmus of the head and eyes, the manifestations in the eyes date from birth, and those of the head began a few months later The head movements are not so uniformly horizontal as are those of her father and half-uncle Her eye movements, which are horizontal, are irregular both in time and in amplitude, this ocular nystagmus is usually present, and has a speed at times of as much as 200 per minute

In the family of the elder brother there are eight children, three of whom stammer the same as their father, but one appears to have acquired the habit through imitation Another child, a daughter, also stammered during the period of a nervous breakdown of several weeks' duration None of the children show spontaneous nystagmus of the head or eyes, but in one daughter extreme excursion of the eyes in any direction causes a horizontal nystagmus

THE NATURE OF NYSTAGMUS

The term "nystagmus" is here extended beyond its usual application Literally, it means to nod, and we observe in ophthalmology that the "nod" may be in different directions, giving us the various forms of nystagmus

Nystagmus may be said to be involuntary, coordinated and rhythmical movements, of frequent occurrence and resulting from alternate contractions in opposing muscles The term appears equally applicable to certain head movements, and occasionally it has been so used

In describing nystagmus, Gowers[1] cites an interesting case, he writes

> Very rarely there is a slight movement of the head, corresponding to that of the eyes in direction, or in the opposite direction of that of the eyes In a case lately under my care, with symptoms of cerebellar tumor and cerebellar nystagmus, the pharynx and the larynx were the seat of similar movement, that of the pharynx as horizontal, toward the median line, in the larynx there was a similar lateral movement of the arytenoid cartilages The rate of movement was the same as in the ocular muscles, 180 per minute

Nystagmus extending beyond the eyeballs was described by Popper,[2] and still later by Pick, who designated the condition accompanying the eye nystagmus as lid nystagmus The latter was obtained with both the lateral and vertical movements of the eyeballs It exceeded the ocular nystagmus when the patient looked to the right or to the left Even head nystagmus was observed by Popper in a case of multiple sclerosis The phenomenon of lid nystagmus as explained by Pick was that of diffusion of the disturbance causing ocular nystagmus, to the nucleus of the levator palpebrae superioris

Conjugate deviation of the eyes is reported by Sklodowski[3] as a new sign occurring with apoplexy These peculiar movements lasted for more than forty-eight hours preceding death in a hemiplegic patient *The movements* were lateral, continuous, slow and rhythmical, and at the rate of about sixteen per minute

After death an area of softening was found in the right lower parietal lobe, the posterior portion of the second temporal convolution and in the adjacent part of the occipital lobe The explanation offered by Sklodowski is that irritation of the subcortical region beneath the lesion may have caused movements of the eyeballs to the opposite side After the active period subsided, exhaustion as a result of irritation occurred, and then the center of the opposite side provoked a movement

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[1] Gowers Diseases of the Nervous System, Philadelphia, P Blakiston's Son & Co, 1898, **2**, 208

[2] Popper Monatschr f Psychiat u Neurol, **39**, 188

[3] Sklodowski Ztschr d g Neurol u Psychiat, **31**, 16

In a patient studied by Rosenfeld,[4] there was observed head nystagmus and also facial nystagmus, the latter occurred as rhythmic twitchings in one of the branches of the facial nerve, and appeared synchronously with ocular nystagmus Rosenfeld assumes that there was a bilateral softening particularly in the central ganglions of the cerebrum He states that vestibular nystagmus is characteristic of a supranuclear lesion

During infancy, there are sometimes observed imperative movements of the head or nystagmus of the eyes, and occasionally these manifestations are associated, even a family form has been mentioned However, the condition passes away in infancy or in childhood Furthermore the phenomenon probably represents a different disease Thompson[5] in an article 'On the Etiology of Head-Shaking with Nystagmus (Spasmum Nutans) in Infants," writes

> The condition presented in the following article is a functional, coordinated neurosis of a harmless nature, which affects young infants and has a short, well defined clinical course.

He adds

> Dr Alexander Bruce tells me that the nucleus of Deiters (one of the nuclei of the vestibular nerve lying in the lateral angle of the fourth ventricle) *is in all probability the seat of* the disturbance. He implies this from its connection with the oculomotor nuclei and with the anterior cornua of the cord.

Thompson further remarks

> It may however, be said in passing that head nodding and nystagmus (separate or combined) lasting during life is obviously an essentially different condition from the transitory neurosis with which we are at present dealing

Nettleship believes that in spasmus nutans ocular nystagmus is never present at birth, and also that patients recover from the condition

INFLUENCE OF HEREDITY

In 1911 Nettleship[6] exhibited cases of hereditary nystagmus, some of which manifested head movements His patients showed that transmission was more frequently through the mother, though not so invariably as in nystagmus without head movements To explain this phenomenon, Nettleship says

> If the object of the head movements were to cancel, neutralize or compensate for the eye movements i e to steady the retinal images, we should expect I think, that the two movements, although in the same plane and probably equal in rapidity, would have opposite directions

As to my cases, the head movements and eye movements were in the same plane, but they varied greatly in speed

Under certain conditions, rhythmical head movements are observed in animals A well known instance is the weaving of the horse, which consists of lateral oscillatory movements of the head and neck The habit is observed in some restless horses that are confined too closely to the stable, and therefore has its origin in idleness Almost every one has observed the weaving of the bear in captivity, and a somewhat similar swaying is seen in the elephant However, such movements are probably entirely under the control of these animals

ETIOLOGIC FACTORS

Ocular nystagmus in man may arise from many nervous diseases or disorders, and the site of origin often varies greatly Sometimes it is observed in the lower animals The horse shows nystagmus in epilepsy, meningitis and always in the stage of excitement of chloroform anesthesia Nystagmus has been observed in dogs born blind and also in those with a congenital underdevelopment of the eyeballs In certain toxic states the symptom is present in swine, as after drinking brine, in this type the nystagmus is due to the ingestion of a large quantity of sodium chlorid

The importance of the color of the iris in ocular nystagmus has been commented on In albinism the irises are without color and persons showing this condition are remarkably nystagmic Nettleship[7] observed a family in which a number of males had nystagmus and all of these were blue-eyed In the cases I have studied, dark irises predominated However, one would hardly expect the color of the iris to have much bearing on nystagmus of central origin, which is the probable seat of the disorder in this family

As to transmission in some diseases, such as hemophilia, night-blindness and the myopathies, the transmission is noticeably through the mothers, who are themselves often unaffected This tendency was observed in the cases I have reported In both instances in which the fathers transmitted the nystagmic tendency, they were themselves affected, while the mother who handed down the disorder was not nystagmic, but transmitted the affection to her two sons, who were children by different husbands

Ophthalmologic studies and Barany tests were not possible since these patients did not wish to submit to an investigation I am unable to explain the remarkable cephalic and ocular movements exhibited by certain members of this family Possibly the disorder belongs to the realm of physiologic pathology and is caused by some obscure instability of the centers governing these movements

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ABSTRACT OF DISCUSSION

Dr. I Abrahamson New York Dr Yawger indicates that the head-nodding and the stammering speech were connected. If this were the case then there would be a quivering of the voice I think the fact that the stammering speech occurred must be accounted for on other grounds, and not on the ground that there was nystagmus of the vocal cords

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[4] Rosenfeld Ueber Vestibulären Kopfnystagmus und facialis Nystagmus bei Pseudobulbarparalyse Arch. f Psychiat. 1914 **53**, 1130

[5] Thompson in Festschrift in honor of Abraham Jacobi, New York Knickerbocker Press, *1900 p 65*

[6] Nettleship Tr Ophth. Soc, U Kingdom 1911 **31**, 159

[7] Nettleship Royal Ophth Hosp Rep 1886 1887 **11**, 366

The *Automobile as an Instrument of Death*—An upward trend in the mortality from automobile accidents is, possibly, to be expected in view of the steadily increasing use of these vehicles Nevertheless the continuously climbing death rate is deserving of more than passing notice In the registration area in 1915 3,978 persons were killed by automobiles In 1914, only 2,826 suffered death in this manner The death rate rose from 4 3 per hundred thousand population to 5 9, an increase of 37 per cent. Had there been seventy-five more deaths from automobile accidents in the registration area, more people would have died in this manner than through surface cars, subway trains elevated trains, bicycles and all horse drawn vehicles combined

FATAL SUPERFICIAL BURNS AND THE SUPRARENALS

NOTE ON THE OCCURRENCE OF SUPRARENAL LESIONS IN UNCOMPLICATED FATAL CASES OF EXTENSIVE SUPERFICIAL BURNS *

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It is quite generally accepted that clinical manifestations, anatomic findings and experimental evidence all indicate that extensive superficial burns are followed by severe toxemia which not infrequently results fatally within a few days. Of the lesions found at necropsy, emphasis has been placed on cloudy swelling of the liver and kidneys, focal degeneration in the splenic lymph nodules, and degenerative changes in the lymph nodes and intestinal lymph nodules.

My necropsy experience in uncomplicated cases of superficial burns fatal within a few days has shown that, in addition to the lesions mentioned, in all of these cases there occur changes in the suprarenals which are more or less characteristic. In fact, these changes in the suprarenals are the most prominent and characteristic of the necropsy findings.

The suprarenals are markedly swollen and deep red. The perisuprarenal fat tissue shows marked edema. On section, certain areas suggest extensive hemorrhage obliterating the normal markings. On section through other parts, the cortex and medulla appear markedly swollen and show reddish streaks suggesting congestion of the blood vessels.

On microscopic examination, there is evident marked congestion of the blood vessels with scattered areas of hemorrhage penetrating among the parenchymal cells. The gland cells are pale staining and much swollen. Many are apparently undergoing hydropic degeneration. Necrotic cells being invaded by polymorphonuclear and endothelial leukocytes are not infrequent. The picture in general is more or less comparable to the central necrosis occurring in the liver of the guinea-pig in chloroform poisoning, except that in the suprarenals the process is diffuse.

These changes in the suprarenals have been noted at necropsy in cases in which death has apparently resulted primarily from extensive superficial burns of two, three, four and six days' duration. In one case the left suprarenal measured 9 by 3 by 1.5 cm. and weighed 20.5 gm., the right measured 7 by 4.5 by 2.5 cm. and weighed 25 gm. (average normal weight, from 4 to 7 gm.). This was the case of a railroad fireman, aged 21, who received extensive superficial burns of the face, forearms, thighs and legs as a result of a boiler explosion, and died three days later.

Kolosko,[1] in 1914, described what were apparently similar findings in the suprarenals in a number of fatal cases of extensive superficial burns. He interpreted the findings as representing hemorrhagic infarction of the glands.

It is perhaps noteworthy that these changes in the suprarenals are comparable to the changes occurring in the suprarenals of guinea-pigs dying several days after the administration of diphtheria toxin. This suggests that the changes are the result of the action of a more or less specific toxin possibly somewhat similar to diphtheria toxin.

As far as I know, such marked changes of this character in the suprarenal glands, at least in man, have not been observed in any other condition.

As a result of the foregoing observations, it would seem that these changes in the suprarenals are the best anatomic evidence we have that in extensive superficial burns death may be due to the action of a specific toxin originating probably in the burned areas.

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* From the Department of Pathology, Syracuse University College of Medicine.

[1] Kolosko: Ueber Befunde an der Nebennieren bei Verbrennungstod, Vrtljschr. f. gerichtl. Med., 1914, **47**, I, Supp., p. 217.

THE CAUSE AND PREVENTION OF HERNIA *

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While the etiology of hernia should remain a subject of general interest until greater unanimity of opinion has been achieved, it takes on a more particular interest at this time, when hundreds of thousands of our young men are about to be mobilized. I say "general interest" advisedly because, according to the newer point of view, the problem of prophylaxis must essentially fall on the medical adviser. The considerable gap between the progressive scientific opinion of today and the conception of most practitioners is partly due to the fact that the interest of teachers has run beyond such an ordinary every-day occurrence as hernia into newer fields. Further, it is only natural that a new point of view should have difficulty in making headway against established conceptions — not only natural, but just — for this attitude is our only check against false innovations! The point of view presented in this discussion, however, is not really new, for it has had time to be accepted into many of the progressive texts of anatomy and of surgery. One very practical asset of the newer point of view is that it breaks away from the congenital theory, against which we acknowledge our defenselessness, and offers a positive plan by which, within limitations, hernias may be prevented.

A few lines will suffice to summarize the essential anatomic points. The real strength of the abdominal wall is due to the muscles, aponeuroses and deep fascias. Aponeuroses are simply wide flattened-out tendons, while deep fascias are layers made up of matted white fibrous tissue, which serve to encase all muscles on all surfaces. The five points of naturally lesser strength in the abdominal wall are the umbilicus and the two inguinal and the two femoral regions. The umbilicus is a puckered scar, while the inguinal canals serve as the passageway for the spermatic cord in the male and for the round ligament of the uterus in the female. It is possible to have a hernia follow along any vessel which goes through the abdominal wall, as the vessels start from inside of the inner deep fascia of the wall. Hernias along the femoral vessels, which are much the largest of those leaving the abdominal cavity, are simply relatively more frequent.

The newer point of view maintains that hernia is caused by increased intra-abdominal pressure, which must, however, be maintained during a *prolonged* period of time. Hernia is obviously not due simply to the strength or weakness of the abdominal wall, for it is a matter of common knowledge that many strong persons have hernias, whereas most weaklings do not. Perhaps the fairest statement is that hernia is due to a disproportion between the intra-abdominal pressure and the strength of the wall In contradistinction to former beliefs, it is now held that hernias are invariably developed gradually, this opinion being based on clinical observation and on the anatomic structure of the hernial sacs If a hernia has descended part way, it may under sudden strain increase rapidly in size, but this is an entirely different matter than really causing a hernia On account of the valvelike arrangement of the openings in the abdominal wall a single strain, no matter how great, tends simply to close the walls tighter For example, the oft repeated experiment of pumping the peritoneal cavity full of air under great pressure in a normal postmortem specimen does not produce hernia

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* Revision of a paper read at the meeting of the St. Louis Medical Society, April 14, 1917.

The theory of congenital malformations as the cause of hernia reached the height of its popularity about twenty years ago This theory fails, according to those who support the newer point of view, to explain many of the conceded facts Most of the collected observations were correct, but the fault lay in the logic of interpretation The persistence of the fetal peritoneal tubes was considered to be a cause of hernia, whereas nowadays the newer point of view maintains that these tubes persist and remain patent because there is increased intra-abdominal pressure The congenital theory was in reality always more of a mask to cover our lack of knowledge than an explanation Every person has these fetal peritoneal tubes in the inguinal canal, but no generally satisfactory answer has even been given to the question as to why these tubes persisted in some persons, whereas in most, practically speaking they disappear It is worthy of emphasis that no fetal peritoneal tube normally makes its exit through either the umbilical or the femoral regions, therefore the inguinal hernias were the only ones ever covered by the congenital malformation theory At one time the congenital theory was pretty generally stretched to cover the etiology of most hernias during infancy, and the primary occurrence of hernias during adolescence Alleged characteristics of congenital malformations were constantly being demonstrated on adults at the operating table, and even the primary hernias of senility were traced to a congenital origin

A few lines will suffice to summarize our clinical evidence The occurrence of all five hernias in an individual at the same time is not at all an uncommon clinical finding For example, a weakly young child or a markedly senile person with chronically increased intra-abdominal pressure commonly presents this picture The increased intra-abdominal pressure may be due either to chronic gaseous intestinal distention or to a chronic bronchitis or to a chronic obstruction to the urinary outflow Such cases bear out the modern conception in that they show that all types of hernia have a common underlying etiology, specifically increased intra-abdominal pressure with relative weakness of the abdominal wall Those of these children that survive their other troubles generally overcome the etiologic factor, and under proper supervision can commonly be cured without operative intervention The inguinal hernia of adolescence is by all odds the commonest and therefore the most important of the hernias It occurs much more frequently in the male, and is so frequently bilateral that the probability of a less far advanced hernia on the opposite side must always be carefully considered The explanation offered for this type is that it is commonly due to excessive intra-abdominal pressure caused by lifting heavier weights, etc, than the youth's abdominal musculature can withstand But if the youth's abdominal musculature is gradually trained to withstand great pressure, according to the newer point of view, hernia will not occur The inguinal hernia is much less common in the female, owing probably to the character of the work of females as a group, while the fact that the round ligaments are materially smaller than the cords of the testicles is considered by many to be a factor The serious types of umbilical hernia are formed during middle life in connection with excessive stoutness Here we typically have our recognized etiologic factors, that is, weakness of the umbilical region of the abdominal wall due to stretching and greatly increased intra-abdominal pressure These hernias incapacitate the patients for exercise, and they therefore tend to become stouter This is a typical vicious circle, which obviously calls for both preoperative and postoperative control of the patients, if the operative mortality is to be held down and the permanency of cure guaranteed

In the modern surgical technics for the repair of hernias, while the sac is resected as in the earlier operations, more and more stress is being placed on the importance of the repair of the musculofascial layers of the abdominal wall in connection with all types of hernia In conformity with the conceptions of the time, many of the earlier herniotomy technics resected the sac and disregarded the abdominal wall, which procedure is almost universally condemned by the surgeons of today In connection with postoperative hernias the main factor is obviously the weakening of the abdominal wall, though eventually the factor of increased intra-abdominal pressure may enter into the problem The two most common causes of marked weakness in the wall are sloughing of the aponeuroses and paralysis of muscles, the paralysis occurring mediad to the incision and being due to the cutting of nerves Any one with surgical experience will agree with the proposition that these hernias are more easy to acquire than to cure, although, to be fair, considerable progress has been made during recent years in handling these difficult cases The point to be emphasized is that the problem of postoperative hernia should be considered in any incision into the abdominal cavity, due regard being paid to the anatomy of the wall, at least whenever this can be done without material sacrifice If a prophecy is allowable, I wish to register my opinion that, with pioneer work out of the way and with improved diagnosis, the surgeon of the future will develop an improved prophylaxis against postoperative hernia

This concludes the brief of my argument for the newer point of view It has the natural prejudice of established conception to contend with, but on the other hand has the advantage of assuming a positive attitude toward the prevention of hernia Even those who cannot bring themselves to concede the validity of the argument in its entirety certainly cannot object to the practical kernel of this discussion, to wit, the importance of the gradual training of the strength of the abdominal wall If I read correctly the temper of our young men about to be called to the colors, many more will require the check-rein than the spur —and for those who accept the point of view presented, one of the reasons for their position is the risk of causing hernias

Wall Building

VALUE OF BLOOD PRESSURE DETERMINATIONS IN THE PRACTICE OF OBSTETRICS *

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The clinical usefulness of blood pressure determinations finds better illustration nowhere than in the practice of obstetrics The supervision of women during pregnancy, it is well known, requires systematic observation of this kind, not infrequently it gives the first warning of an impending toxemia and affords a measure of its seriousness When conservative treatment is unavailing, the persistence of arterial hypertension becomes a strong reason for the termination of pregnancy, as a means of preventing convulsions And, though less appreciated, there are other uses for blood pressure determinations in obstetrics which deserve an equal prominence In the period of convalescence after eclampsia, for example, blood pressure determinations have proved to be an excellent guide to the ultimate prognosis for these patients

The clinical interpretation of autointoxication during pregnancy, in many ways as hazy as it ever was, still depends on secondary or even more remote effects of the responsible poison, the primary cause of the albuminuria of pregnancy and its alarming sequelae remains unknown In search of the cause of eclampsia, investigators have not been helped materially by detailed analysis of the urine to determine the character and the quantity of the waste products it contained Likewise, chemical analysis of the blood has been disappointing As the latter method provided a nearer approach to the source of the toxic agent, there was reason to hope that its real nature would thus be revealed However, this goal has not been attained, nor in the course of blood analysis has there been found a more reliable therapeutic guide than we previously possessed Of this result I speak confidently, for during the past two years I have studied the blood of fifty cases of preeclamptic toxemia, eclampsia and allied intoxications and have determined the quantity of many of its constituents, including the nonprotein nitrogen, amino-acids, urea, uric acid, sugar, lipoids and calcium Estimations of the capacity of the plasma for combining with carbon dioxid, generally accepted as a method for detecting the presence of an acidosis, have also been made. Unusual values for these various factors are frequently found, but no constant relationship exists between any of them and the complications of pregnancy in question, and, therefore, the changes noted in the composition of the blood seem to be of a secondary character

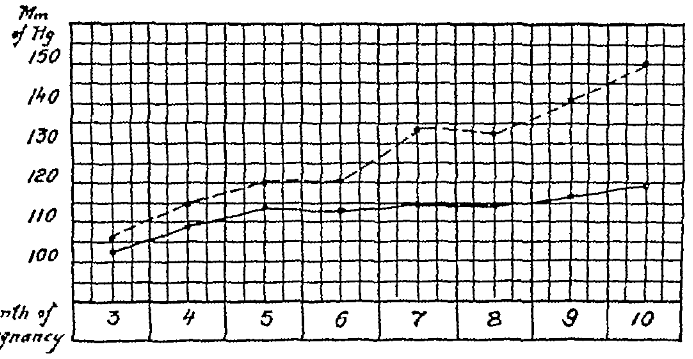

Chart 1 —Systolic blood pressure during normal pregnancy The monthly average is represented by the solid line. The tension indicated (115 mm of mercury) is considered normal The broken line indicates the highest observation during each month A pressure of 150 mm of mercury should be regarded as an early sign of preeclamptic toxemia

As the more intimate study of the urine and the blood has not brought us nearer to the solution of the eclampsia problem, the seriousness of albuminuria during pregnancy is determined from less satisfactory evidence than that available in some metabolic disturbances, as diabetic coma, the cause of which has been definitely ascertained It is not implied, however, that excellent rules for the treatment of preeclamptic toxemia are lacking The careful supervision of pregnant women serves effectively to protect them from eclamptic convulsions and, for this purpose, very simple observations are required These include, first, accurate measurement of the quantity of urine voided during a period of twenty-four hours, second, estimation of the quantity of albumin by the Esbach tube, if albumin is present in measurable amount, and third, determination of the systolic arterial pressure For several reasons, it is advisable to include the blood pressure in these observations the technic is not difficult, the information gained is objective, and our experience has reached the point at which sufficiently definite rules for the interpretation of the findings may be formulated

Obviously, in the presence of complications of pregnancy, the significance of the arterial tension will depend on knowledge of the tension in normal cases There have been a number of statistical studies of this question, and fairly uniform results have been obtained, though the data collected thus far relate chiefly to the latter months of pregnancy Interest in this period was the greater because it presented a tendency toward hypertension, whereas in the early months normal values were observed These facts indicated an upward trend in the systolic pressure even during normal gestation To secure first hand information regarding this phenomenon, Dr A H. Yudkin recently tabulated and analyzed the prenatal records of 500 normal obstetric cases treated in this clinic, his results are graphically represented in Chart 1

In the average case, as indicated by the solid line in Chart 1, the systolic pressure during pregnancy remains within normal limits, although in the early months the values are somewhat lower, and in the later months somewhat higher, than are found in the middle trimester of gestation From the fifth to the eighth month, the prevailing tension, 115 mm of mercury, is identical with that generally considered normal

Hypotension is more common in the early months of gestation, but may also occur in the later months, and is then said to be prophetic of shock during the approaching labor In my experience, however, a systolic pressure of 90 mm of mercury in the last month of pregnancy has not been incompatible with normal parturition

On the other hand, the maximum degree of tension presented by normal cases is a question of great practical moment, for, if possible, we wish to know what height of pressure gives warning of impending eclampsia Not infrequently in the latter half of pregnancy, hypertension occurs in patients who proceed

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty Eighth Annual Session of the American Medical Association, New York, June 1917

normally to term and pass safely through delivery Even a pressure of 150 mm of mercury may not indicate the existence of serious toxemia Nevertheless, in these circumstances it is advisable to regard the hypertension as the earliest sign of preeclamptic toxemia, and, so regarded, it affords the opportunity to institute conservative treatment at a time when it is most likely to be effective Consequently, my custom is to make daily observations on patients with a blood pressure of from 140 to 150 mm of mercury Hygienic, dietary and medicinal measures are begun and, when these are ineffective, labor is induced by the use of a uterine bougie

While the greatest service of blood pressure determinations during pregnancy is to warn the physician that his patient is threatened with eclampsia, occasionally, even in the face of albuminuria such observations teach that the complication is not preeclamptic toxemia This use of blood pressure was brought home to me in the treatment of a patient whose urine contained 3 gm of albumin per liter though the systolic pressure was 135 mm of mercury In this instance, the responsible complication was pyelitis, and recovery followed the administration of urinary antiseptics

The third useful purpose of blood pressure determinations in the practice of obstetrics pertains to the prognosis in cases of eclampsia While the disease is in progress, the persistence of a high arterial pressure means that the therapeutic measures adopted have as yet been unavailing, a falling pressure, on the other hand, usually denotes clinical improvement and becomes a convenient measure for the degree of this improvement But there are occasional exceptions to this rule, as when the pressure falls because of hemorrhage or of shock The latter was responsible for the systolic pressure reaching 70 mm of mercury in one of the patients, and here, of course, the subsequent rise in pressure denoted improvement Generally, however, it is the opposite phenomenon which signifies that treatment has been successful

The fall in blood pressure coincident with convalescence from eclampsia is illustrated by Chart 2 When admitted to the hospital, already in labor, this patient was suffering from a severe toxemia, though the first convulsion did not occur until after she was delivered Venesection was then performed, but was of only temporary benefit Various other therapeutic measures were tried, including the administration of morphin and cathartics, the use of hot packs and hypodermoclysis As the patient was rapidly growing worse, we resorted to lumbar puncture, which had been found useful in two cases reported by Wilson[1] Following this treatment there was only a slight convulsion, and within a few hours notable clinical improvement began

Encouraged by this favorable experience the method has been given further trial, I have employed lumbar puncture in four other cases One of these — probably a case of acute nephritis at the seventh month of pregnancy — was not benefited, and, similarly, another patient with antepartum eclampsia did not improve after a lumbar puncture On the other hand, two desperate cases of postpartum eclampsia improved immediately following the treatment in question Therefore, while in my judgment lumbar puncture may not be implicitly relied on, it adds another procedure to be employed when convulsions continue after the patient has been delivered or when they first appear in the postpartum period

The diastolic pressure is somewhat elevated in preeclamptic toxemia and eclampsia, though not to the same extent as the systolic pressure Likewise, the pulse pressure, while increased, provides no better, if as good a guide, for treatment Variations of the pulse pressure are less emphatic than in the case of the systolic pressure and, therefore, the latter is preferable as a clinical index

In the fourth place, blood pressure observations are valuable because they assist toward reaching an ultimate prognosis in cases of albuminuria of pregnancy and eclampsia This, of course, is of great moment, the patient wishes to know in the event of subsequent pregnancy whether or not she is likely to encounter the complication again

From the statistics of hospitals and of private practice, it appears that one of every five or six women who suffer from a high grade albuminuria during pregnancy sustain permanent damage to the kidneys and, therefore, may expect complications in later pregnancies To distinguish these types of cases, with favorable and unfavorable prognosis, there is no means so satisfactory as the study of the blood pressure during the period of convalescence Using this criterion in the study of fifty-two patients recovering from severe albuminuria, I have found that three groups may be distinguished (1) Cases in which the blood pressure returned to normal within two weeks after delivery Of these there were thirty-nine, or 75 per cent of the series Many of these women who suffered from convulsions during one pregnancy subsequently have passed through another without untoward symptoms, and on these grounds, I believe the ultimate prognosis for this group is favorable (2) Cases in which hypertension persisted in the puerperium for a period of from six to eight weeks, a phenomenon indicative of permanent renal injury In the series, there were five instances of this kind, or 10 per cent , on discharge, their systolic pressures were, respectively, 150, 160, 180, 200, and 250 mm of mercury Subsequently three of these women required the interruption of pregnancy on account of nephritis, and it is reasonable to believe the prognosis is always unfavorable in this group (3) Cases in which slight hypertension prevailed at the end of a month postpartum In the series there were eight instances of this type, or 15 per cent The prognosis is doubtful in these circumstances Some of these

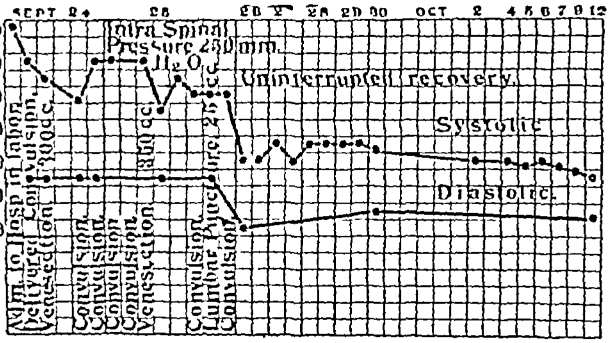

Chart 2 (Case 59173) —Systolic and diastolic pressure in eclampsia Marked fall in blood pressure coincident with convalescence Lumbar puncture especially caused decided reduction of pressure and improvement in the symptoms

probable that most of the reported cases of so-called "sigmoiditis" are examples of diverticulitis.

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[1] Wilson W T Lumbar Puncture for the Relief of Convulsions in Puerperal Eclampsia, The Journal A M A. Sept 2 1916 p 742

Of the forty-two patients in whom resection was done, 66.6 per cent were males and 33.4 per cent females. The average age was 53 years. The youngest patient was 27 years of age and the oldest 73. The average weight was 175½ pounds. The heaviest patient weighed 225 pounds, the lightest 120 pounds. Those of light weight were below their average weight for the previous ten-year period. In many cases, increased deposit of fat in the abdominal cavity undoubtedly had some influence in the development of the diverticula, especially if there had been a tendency to the formation of intestinal gases. The average duration of symptoms was two years, the longest twelve years, the shortest seven days.

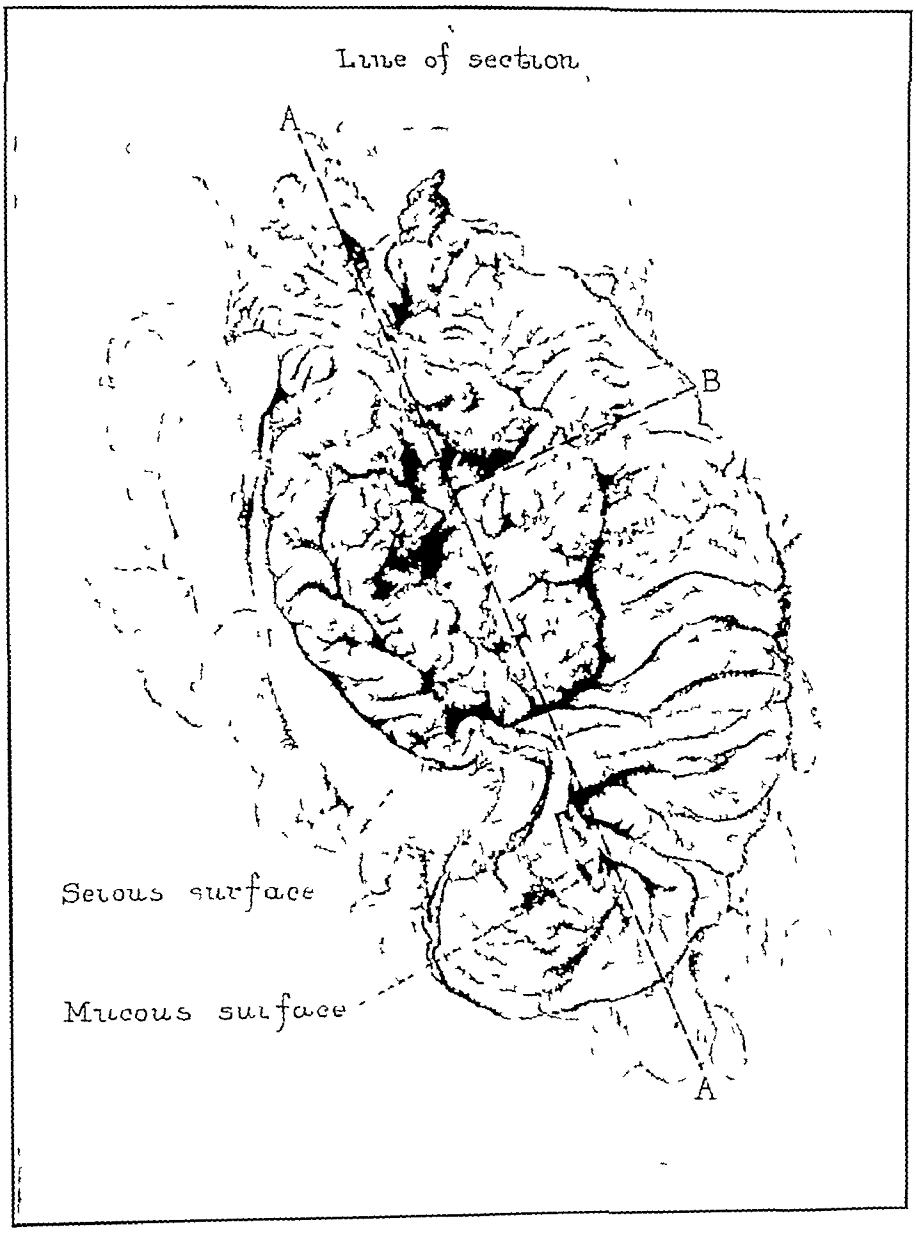

Fig. 3.—Carcinoma of the sigmoid developing on diverticulitis. Specimen to be sectioned through orifices of diverticula at Lines *A* and *B* (see Figures 4 and 5).

In thirty-four of the forty-two patients, a sensitive tumor was present in the left iliac fossa during the attack, which was attended by localized peritonitis and often by intestinal obstruction. In two patients, diverticula were found in the rectum. C. H. Mayo[8] has shown that occasionally a deep-seated infection about the rectum eventuating in long fistulous tracts extending from the perianal region into the pelvis has this origin. Twenty patients had pain in the left iliac fossa. In thirty-two constipation was marked. A diagnosis of inflammatory disease was made in twenty of the forty-two cases. The Roentgen ray showed obstruction, but in acute obstructions it did not differentiate diverticulitis from carcinoma, although it usually made the differentiation in chronic disease. Carcinoma was present in thirteen cases (31 per cent.).

Clinically, cases of diverticulitis may be readily classified into four groups.

Group 1. *Self-Limiting Diverticulitis and Peridiverticulitis.*—This group includes fleshy, middle-aged persons who present themselves with an acute sensitive tumefaction in the left iliac fossa. The mass gradually disappears in the course of some days, with restoration to health. The disturbance is due to irritation of fecal concretions, dead epithelium and other contents in the thin-walled, narrow-necked sacs, which cause obstruction from edema and infection and penetration of bacteria to the peritoneal surface. There is marked tendency to relapse quite similar in character to that of relapsing appendicitis, and in the early histories of the patients of Groups 2, 3 and 4, it will often be found that several such attacks had occurred before the severe attack which necessitated surgical interference. That diverticulitis does not always produce trouble is shown by the relative frequency with which this condition is found postmortem, by the frequency with which diverticula of the sigmoid are a chance finding in the course of abdominal operations for other purposes, and by the frequency with which routine Roentgen-ray examination of the colon shows symptomless diverticula. We should not assume, therefore, that the presence of these diverticula, or even a single mild attack of diverticulitis which quickly subsides without obstruction or other serious symptoms, necessitates operation. Patients of this kind are often poor surgical risks from other causes, such as obesity, and a considerable mortality attends resection, the only operation that really cures the disease. It is only in those cases, therefore, in which the symptoms are serious or the disease becomes chronic or relapsing that operation is to be considered.

Group 2. *Diverticulitis and Peridiverticulitis with Formation of Abscess Resulting in Enterovesical, Enterocutaneous and Other Fistulas.*—This group includes those cases in which infections — either a developing peritonitis with abscess formation or the results of infectious processes which connect the diseased colon with the cutaneous surface, the bladder, or neighboring intestine — lead to the necessity for surgical interference. The rule is that if an abscess forms it should be opened and drained, but a serious attempt should not be made at the primary operation to remove either the infected diverticula or the section of colon which contains them. None of our patients has died from a general septic peritonitis as the primary result of diverticulitis, although such cases have been reported The management of cases of complicated fistulas in which there are openings into the bladder and colon and to the cutaneous surface, and especially that most common type in which an internal fistula connects the bladder and the sigmoid, is very difficult The obesity of the patient and the enormous amount of scar tissue which surrounds the fistulous tracts add greatly to the operative difficulties In enterovesical fistulas we have opened the peritoneal cavity, dissected out the fistulous tracts, and closed the openings in the bladder and colon with chromic catgut sutures Rarely was the result immediately satisfactory As a rule, a temporary fecal fistula to the surface formed after a few days, but when, following operation the bladder and sigmoid were kept separated by rolls of rubber tissue, and especially when the sutured opening in the sigmoid was protected by omentum, these secondary fistulas eventually closed spontaneously A retention catheter has been placed in the bladder for a week and a rubber tube fastened into the rectum following operation, to relieve tension

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[8] Mayo, C. H.: Diverticula of the Gastro-Intestinal Tract: Their Surgical Importance, The Journal A. M. A., July 27, 1912, pp. 260-264.

Group 3 *Obstruction* —In acute diverticulitis the obstruction is the result of infection and edema Chronic obstruction is due to hyperplasia, adhesions and angulation — the hyperplastic stenosing type The condition is practically identical with those in Groups 1 and 2, but the addition of the obstruction in these cases is so serious a feature that it seems best to classify them independently It was most surprising, however, when the entire mass was dissected out and the diseased bowel laid open, to find so little actual obstruction In this group a tumor is usually found, and in 31 per cent malignant disease coexists I do not know of a more difficult differentiation than to foretell whether a given obstructing tumor deep in the iliac fossa of an adipose patient is diverticulitis or carcinoma or both On a number of occasions I have gone down on such tumors which had been explored and pronounced inoperable by surgeons of skill and experience, and on dissecting the tumor out, found that it was diverticulitis without carcinoma and that the enlargement of the lymphatic glands, which had been one of the determining factors in estimating inoperability at the previous exploration, was due to sepsis As a rule, the obstruction from diverticulitis is not quite complete In this respect it differs from that of carcinoma, in which condition complete obstruction may be the first symptom of the disease Several times, with great difficulty, I have dissected out a considerable portion of the sigmoid and found that the infection involved only one or two diverticula Therefore the offending diverticula might have been excised and the patient spared the risk of the more serious operation In two cases it was possible to excise infected diverticula successfully and separate the obstructing adhesions On a few occasions a tumor was explored because of our inability to differentiate diverticulitis from carcinomatous disease After a diagnosis of diverticulitis was established, drainage was instituted for the relief of the local peritoneal infection, with recovery of the patient Fortunately, the Roentgen ray now furnishes the differentiation in a high percentage of cases In acute obstruction it may be necessary to make a colostomy close to the obstructing mass so that the colostomy and tumor may be excised together at a second operation, or perhaps a better plan is to do a complete ileostomy for temporary relief, then resect later, and finally, as a third stage, restore the ileum to the cecum

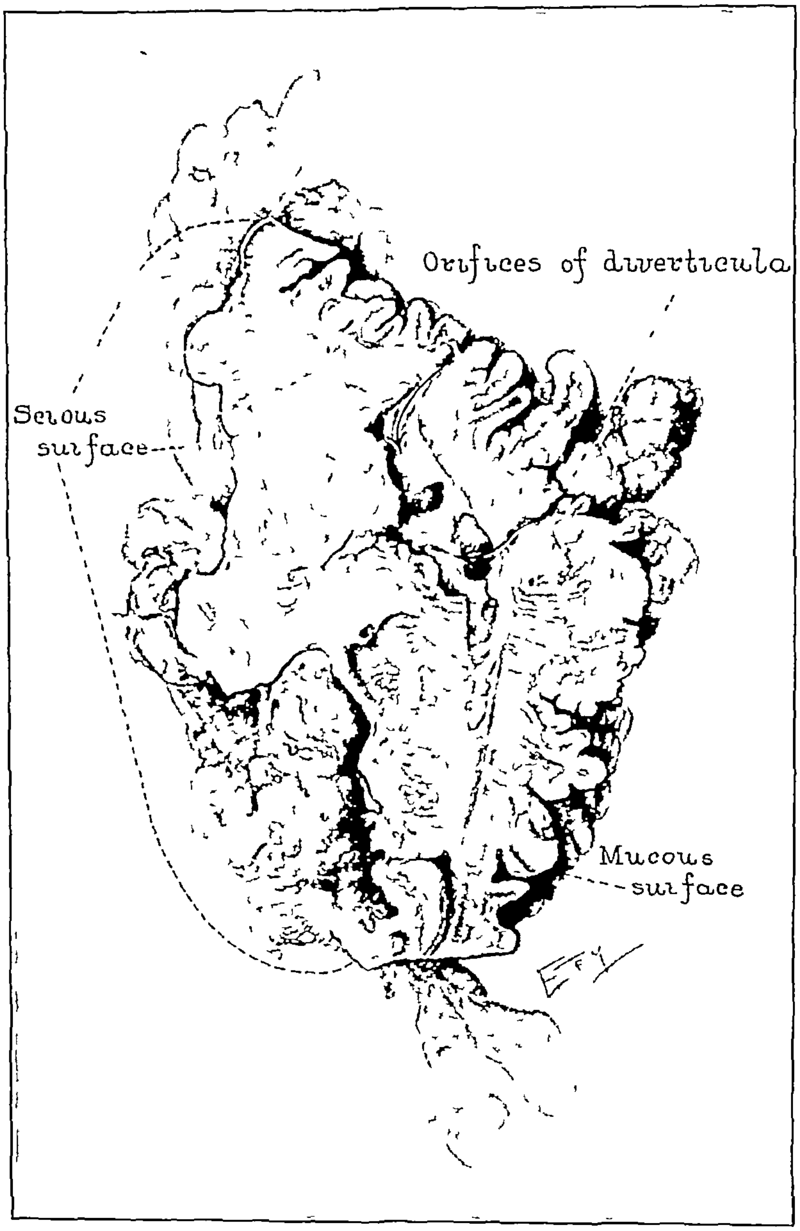

Fig 4 —Half of the specimen shown in Figure 3 after a longitudinal division at Line *A* showing courses of diverticula about which carcinoma has developed.

Group 4 *Carcinoma Developing on a Diverticulum* —This group is of great interest Among the forty-two cases of resection for diverticulitis, there were thirteen in which carcinoma coexisted The carcinoma had such definite relationship to the diverticulitis as to make it reasonable to assume that infection and irritation by hardened fecal masses in diverticula were the cause of chronic irritation and precancerous change The only known fact of importance in the etiology of carcinoma is its relation to chronic irritation The term "precancer" is used to denote certain cell changes taking place in the area of chronic irritation which, if found in connection with invasion of the tissues, would be typical of carcinoma

Giffin[9] found that for every sigmoid resected in our clinic for diverticulitis, seven had been resected for carcinoma Our statistics show that in 300 resections for carcinoma, 180 were for sigmoid growths In forty-two cases of diverticulitis of the large intestine, the diverticula were in the sigmoid in thirty-six It has often been pointed out that carcinoma of the colon, especially of the sigmoid, may progress very slowly Cases have been reported in which a colostomy was made for the relief of obstruction due to supposed carcinoma, the patients lived for a number of years and then died with carcinoma of the sigmoid, a fact which apparently proved that the condition had been carcinoma from the beginning and that the natural course of the disease had continued for eight or nine years This inference is unwarranted We have operated in several cases of this type, and on resection of the growth found carcinoma developing on old diverticulitis In tracing the early history it could be seen that the diverticulitis had been the cause of the obstruction for which the colostomy was done and that the carcinoma had developed at a much later date as the result of the chronic irritation In one rather remarkable case, a supposed carcinoma of the sigmoid, associated with a carcinoma of the transverse colon, was found on exploration I removed the left half of the transverse colon, the splenic flexure, the descending colon, and part of the sigmoid, uniting the remainder of the transverse colon to the lower sigmoid When the specimen was unraveled, it proved to be diverticulosis of 6 inches of the sigmoid The carcinoma had developed on one diverticulum which had become adherent to the transverse colon, and had spread into the peritoneal, muscular and submucous coats of the transverse colon without penetrating the mucosa There was no carcinoma in the sigmoid, the malignant process being confined strictly to the diverticulum and the transverse colon At the present time it is usually possible to differentiate between diverticulitis and carcinoma by the Roentgen ray since in carcinoma a filling defect will be found in addition to the less reliable findings of blood, pus, and mucus in the stool With the sigmoidoscope we have been able to differentiate carcinoma associated with diverticulitis of the lower sigmoid and rectosigmoid, but have not been able to demonstrate diverticula

Some of our patients with carcinoma associated with diverticula gave a long history of having had, at various times, inflammatory attacks with development of tumefactions which disappeared After the carcinoma developed, the symptoms became more or less continuous In reviewing a series of early specimens of sigmoid resected for supposed carcinoma, Wilson[10] found that three which had been resected years ago, before all specimens were subjected as a routine to microscopic examination, showed diverticulitis and no carcinoma The association of carcinoma with diverticulitis leads to the conclusion that when a tumor appearing to be diverticulitis but without acute symptoms is found in the sigmoid or colon, and especially if the tumefaction only partially subsides and then continues as a chronic mass causing symptoms more or less marked, carcinomatous change is to be suspected and resection should be done If there is definite obstruction at the time, or if the disease is advanced, the two-stage operation of Mikulicz, Bruns and Paul, as described by C H Mayo, may be adopted Frequently, instead of leaving the tumor attached in the wound, we have cut the protruding bowel and tumor off, leaving the two ends of the intestine closed by a clamp on each, suturing the intestinal stumps into the wound behind the clamps and thoroughly covering the parts with petrolatum After from twenty-four to forty-eight hours, or as long as the patient was able to stand the gas pressure from the complete obstruction, the clamps were removed The suggestion of Peck[11] to leave the ends of the intestine closed for some hours until adhesion takes place has been of great value on a number of occasions, and permits primary union of the operative wound

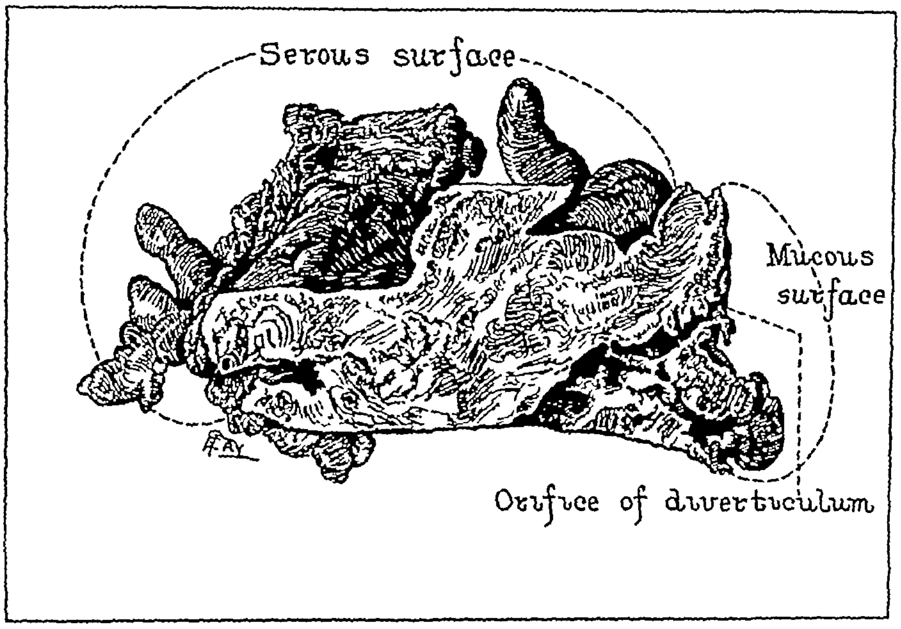

Fig 5 —Half of section shown in Figures 3 and 4, after a horizontal division at Line *B* Course of diverticulum through the orifice through which Line *B* passes

Of forty-two patients with diverticulitis, with and without carcinoma, on whom we have done resections, 14 per cent died as the result of the operation, that is, within four weeks The mortality was high, but it must be taken into consideration that these patients were usually adipose, and it was often necessary to operate during the stage of obstruction, infection, etc A large majority of the fatalities occurred in the earlier period when it was believed that the tumefaction was due to carcinoma, and extensive dissections seemed to be indicated It is of great value, therefore, to be able to differentiate between diverticulitis and carcinoma, as in diverticulitis the removal of the mass of tissue which would be essential in carcinoma is not necessary When a primary resection was made, we employed an end-to-end union, but as a rule found it wise either to suture the anastomosed area well up into the peritoneum and leave the suture line exposed, or to pass a folded strip of rubber tissue entirely around the anastomosis to suspend it in the wound, as there was a tendency to late infections, and unless provision was made for drainage, slowly progressing peritonitis occasionally caused death To provide against gas pressure we have sometimes passed a good-sized red rubber tube by way of the rectum entirely through and well above the anastomosed area and fastened it with a single suture to the anus

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[9] Giffin, H Z Diverticulitis of the Rectum, Ann Surg, 1911, **53**, 533 537, The Diagnosis of Diverticulitis of the Large Bowel, A Clinical Review of Twenty Seven Cases, The Journal A M A, Sept. 14, 1912, pp 864 866 Giffin, H. Z, and Wilson, L B A Case of Carcinoma on Diverticulitis of the Sigmoid, Am Jour Med Sc., 1909, **137**, 661 666

[10] Wilson, L B Diverticula of the Lower Bowel Their Development and Relationship to Carcinoma, Ann Surg, 1911, **53**, 223 231

[11] Peck, C H Diverticulitis, Tr New York Surg Soc., 1910, Ann Surg, 1910, **52**, 264

In very extensive cases with obstruction, Balfour[12] advises making a complete ileostomy close to the cecum after the manner of Brown,[13] bringing the end of the ileum out through a small opening in the right side and closing its distal end completely, thus entirely diverting the intestinal contents from the large intestine A cecostomy is made at the same time for cleansing the colon This renders a resection of the involved colon much safer subsequently Later, the end of the ileum is joined to the cecum end-to-side A great advantage of this procedure is that the colon can be cleansed and maintained empty, and soon becomes nearly free from bacteria Considerable experience with complete ileostomy in the management of ulceration of the colon has shown that the patient maintains weight and excellent health, and that the disability is not at all so great as would be thought After several weeks the stool becomes partly formed, is easily caught and contained in any one of the various colostomy bags, and there is much less odor than with a colostomy I venture to say that, on the average, an ileostomy is much less of a nuisance than a colostomy[14]

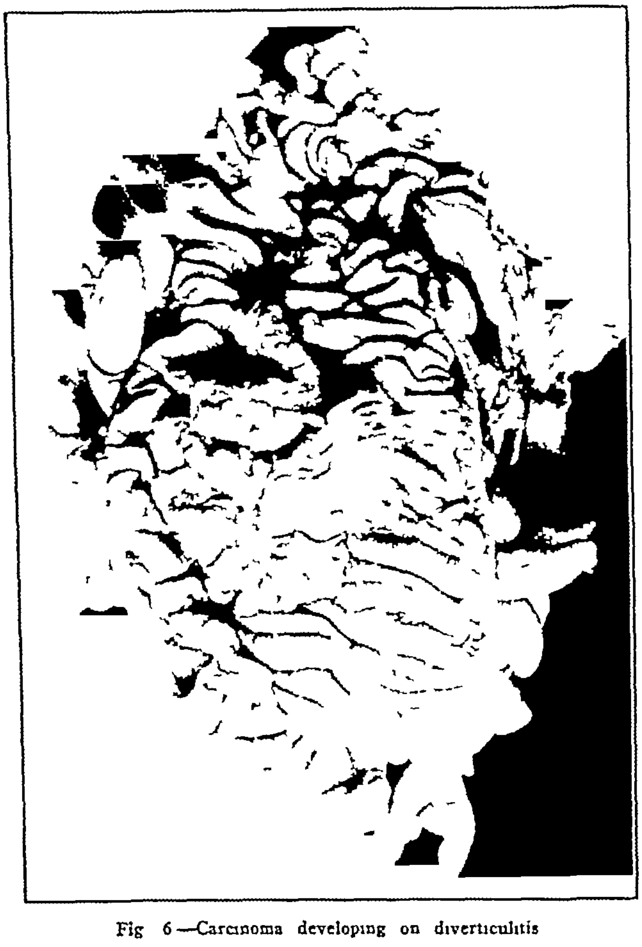

Fig 6 —Carcinoma developing on diverticulitis

ABSTRACT OF DISCUSSION

Dr. D Roberts, Brooklyn I am sure that diverticula are common in the colon In a large percentage of cases the symptoms are mild It is significant that patients with lower abdominal pain have been entirely free from such pain after a dose of barium or of bismuth When there is partial obstruction of the colon, care should be taken to avoid complete obstruction by stirring up an old constipation, making acute symptoms In diarrhea with fecal obstruction, which these people complain of, patients do better without laxatives than with them, because they make the feces liquid and consequently more irritating

Dr. Miles F Porter, Fort Wayne, Ind In a patient brought into the hospital for the relief of intestinal obstruction, after a hasty examination I opened the abdomen and concluded that I had to deal with inoperable cancer of the sigmoid I therefore divided the intestine, dropped the lower end and brought up the upper end under the impression that my patient would be relieved so far as surgery could do this by making an artificial anus and giving the lower portion opportunity to rest, my idea being that she would at least be comfortable in the short time she had to live. A few months later I was requested to visit her town for the purpose of closing her fistula. I declined on the ground that her fistula was necessary to life The woman after years is living today with her fistula closed by nature, a monument to my ignorance. In other words, she had a diverticulitis which I regarded as an inoperable cancer The second point in regard to this case is that the diverticulitis is cured, but is she still having a slowly growing cancer? I appreciate what Dr Mayo said about that, but the case occurred more than eight years ago The woman, when I last heard from her a few months ago, was in perfect health The case suggests that it would be wise in many of these cases, when we are in doubt, to adopt the two-stage operation, doing a colostomy and allowing the patient to rest for three or four weeks You will be surprised to find how comparatively easy it is to remove radically the carcinoma that is left behind It has been my misfortune to see patients brought into the hospital with diffuse peritonitis from a perforated diverticulum who have died in spite of our efforts to relieve them

Dr W J Mayo, Rochester, Minn As a rule, I think the majority of cases give symptoms at times, but in many instances not enough to justify operation, although one should operate if recovery from an acute attack does not rapidly take place, provided the patient is a good surgical risk. In forty-two consecutive cases in which resection of the sigmoid was performed, three, which we believed to be carcinoma, proved to be diverticulitis There is a possibility of carcinomatous degeneration in about 31 per cent. A number of patients who came to us had had colostomy, as described by Dr Porter But these patients with diverticulitis did not have histories and findings that were indicative of carcinoma. Sudden obstruction and a tumor mass adherent to the back of the bladder or the side of the pelvis or to the intestines, suggests diverticulitis when there have been no previous symptoms of carcinoma, such as passage of mucus and blood In the absence of symptoms which occur with cancer in these cases, one should expect to find diverticulitis The patient with relapsing diverticulitis or chronic stenosing tumors should be given the best possible chance of cure by local removal of the disease in a one-stage or two-stage operation

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[12] Balfour, D C Meckel's Diverticulum A Report of Fifteen Cases Jour Minnesota Med Assn , 1911 **31**, 110-112

[13] Brown J Y The Lane Operation The Indications for and the Limitations of the Procedure, with a Discussion of the Principles Underlying It Tr South. Surg and Gynec. Assn , 1911, **24**, 137 150

[14] Since completing this paper, I have read the following articles with great interest and profit
Drummond, H Sacculi of the Large Intestine, with Special Reference to Their Relations to the Blood Vessels of the Bowel Wall, Brit Jour Surg 1917 **4**, 407 413
Telling W H M and Gruner, O C Acquired Diverticula Diverticulitis and Peridiverticulitis of the Large Intestine, Brit. Jour Surg, 1917, **4**, 486-530

A SIMPLE METHOD OF AGGLUTINATION OF MENINGOCOCCI *

RUTH TUNNICLIFF, M D
CHICAGO

The following is a simple and rapid method for differentiating by agglutination the meningococcus from other gram-negative cocci grown from the nasopharynx of meningitis patients and contacts

Equal parts of horse serum, normal or antimeningitic, whole human blood in sodium citrate solution (1 part to 2 parts of 2 per cent sodium citrate in salt solution), and a suspension of organisms are incubated ten minutes, smeared on a glass slide, stained and examined microscopically In the mixture with normal horse serum there is, as a rule, very little or no clumping of the meningococcus, while in the one containing antimeningitic serum there is decided agglutination In the event that cultures of organisms, meningococci or otherwise, should be agglutinated in mixtures with normal horse serum, it would be necessary to use dilutions of the serum, normal as well as immune, in order to bring out the specific agglutinins of the immune serum

In many cases, agglutination of the meningococcus occurs in the immune serum without the presence of human blood, but the blood gives a better staining specimen and appears to promote agglutination This effect was observed first in the course of observations on opsonins in antimeningitic serum

The suspensions of micrococci are made by adding one or two colonies from the original plate or a loopful of a subculture to 2 or 3 drops of physiologic sodium chlorid solution

In making the tests, bent capillary pipets are used First, a small quantity of serum, about 1 drop, is drawn in, the upper end of the column marked with a pencil, and then drawn up to admit an air bubble, next an equal amount of citrated blood is aspirated, when a sufficient number of pipets has been prepared in this way, the bacterial suspensions are made, and of each suspension the amount already indicated on the pipet is drawn into each of two pipets, one with normal horse serum and one with antimeningitic serum Now the contents of the pipets are mixed in the bend, and after an incubation of ten minutes at 36 C (or room temperature for twenty minutes), the contents are gently mixed again and blown out on a glass slide, spread with cigaret paper and, when dry, stained unfixed with carbolthionin, or fixed with heat and stained with methylene blue

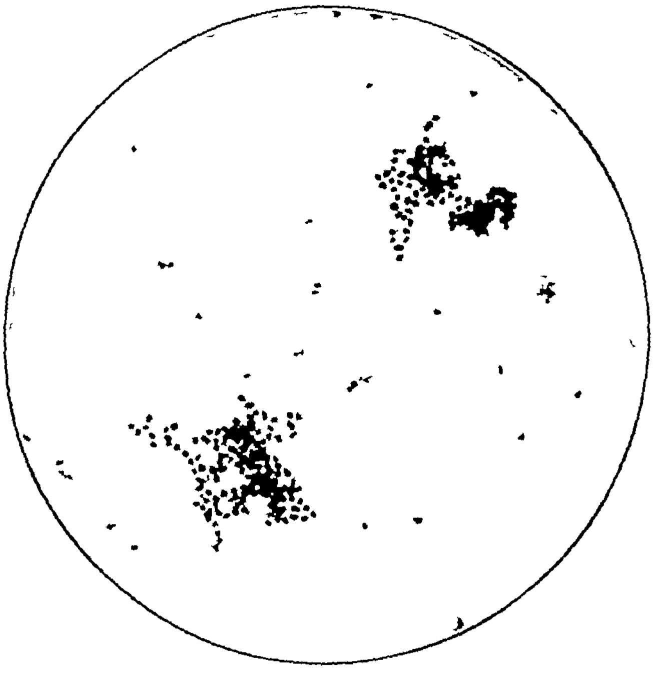

Fig 1—Agglutination of meningococci by specific serum as demonstrated by rapid method here described

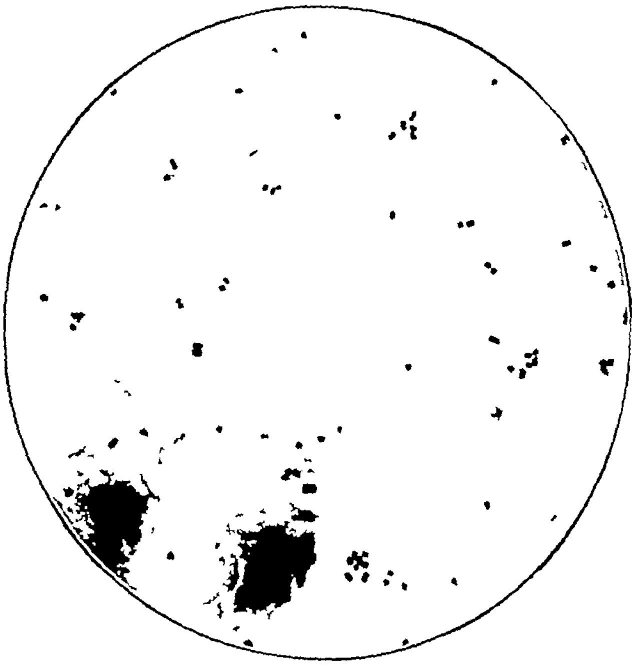

Fig 2—Absence of agglutination in control preparation with normal horse serum

In this way about ten cultures can be examined in one hour, which is less time than it takes to make the macroscopic agglutination test If the original colonies on the plates are separate, suspensions can be made with them and the organisms differentiated as early as sixteen hours or so after the original cultures have been made If subcultures are used for the suspensions, the diagnosis is made twenty-four hours later, in any case, twenty-four hours may be saved, and often forty-eight, as compared with the macroscopic method

One hundred and eighty cultures isolated by Dr George Mathers from the nasopharynx of meningitis patients and contacts have been identified by this method One hundred of them have also been examined by the macroscopic method of incubating twenty-four hours at 56 C, and whenever agglutination occurred by this method it also occurred in the tests made as here described Four strains of meningococci were agglutinated microscopically but not macroscopically, probably owing to the higher dilution of the immune serum (1 50) in the macroscopic test Forty of these cultures were from convalescent meningitis cases Spontaneously agglutinable or inagglutinable strains of meningococci have not been encountered so far as I am aware The other gram-negative micrococci in the cultures gave no agglutination, microscopically or macroscopically The antimeningitis serum used was obtained from the Department of Health of New York City

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* From the Memorial Institute for Infectious Diseases

Pedagogic Celibacy—Not less than half a million women are potentially affected by the institution of pedagogical celibacy—an institution which is to be compared with that of sacerdotal celibacy in the amount of permanent harm that it is capable of doing to the race—*Jour Heredity*, June, 1917

THE TREATMENT OF DEFORMITIES OF THE SPINE CAUSED BY POLIOMYELITIS

A REPORT OF EIGHT CASES IN WHICH FUSION OPERATIONS WERE PERFORMED *

RUSSELL A HIBBS MD
NEW YORK

Deformities which develop in consequence of permanent damage to the muscles of the spine from anterior poliomyelitis are among the most difficult with which the orthopedic surgeon has to deal, and I know of no means which can be depended on to prevent their progress Plaster jackets and braces can, at best, only retard the development of deformity

It has seemed to me practical, therefore, in such cases, to do a fusion operation on the spine exactly similar to that which has been used in the treatment of Pott's disease at the Orthopaedic Hospital since 1910

It is my purpose to report eight cases in which this operation has been done for scoliosis None of these patients were operated on until long after the acute attack, and obviously one would not operate at all if there were any prospect of recovery of the muscles affected I do not think, however, it is at all necessary to wait as long as we have waited in these cases

This operation is in every essential feature precisely the same as that performed on patients with Pott's disease Since there seems to have been some misunderstanding of the technic of the operation, perhaps a description of it here will not be out of place

An incision is made directly over the spinous processes through skin, subcutaneous tissue and ligament to the tips of the spinous processes The periosteum over each tip and the ligament between is split The periosteum is then elevated from the bone over a part of each process in turn As the periosteum is separated from the bone, small packings of gauze are made to prevent oozing Separation of the periosteum is carried forward gradually until each spinous process and lamina is completely bare to the base of the transverse process This is done in children with a blunt periosteal elevator and in adults with a sharp one, as in the latter the periosteum is more adherent.

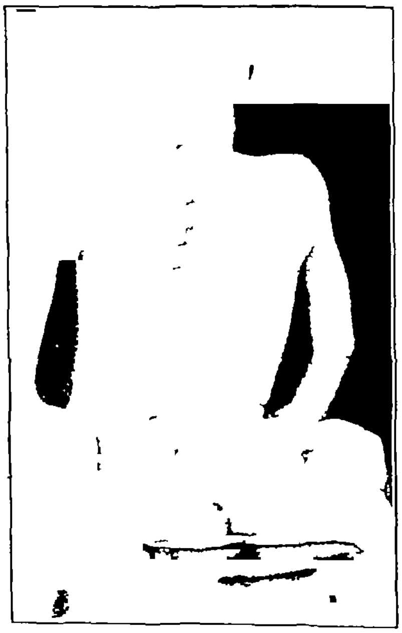

Fig 1 (Case 1) —Condition before operation.

The periosteum is then pushed from the adjacent bases of the spinous processes and the adjacent edges of the laminae to the ventral side with a small curet or a periosteal elevator With this dissection made, the operative field is ready for any treatment of the exposed bone that is desirable The first thing to be done is to curet the lateral articulations which lie at the base of the transverse process and are always easily reached in children and in most adults After this is accomplished, a small piece of bone is elevated from the laminae and turned down, its free end resting on the one next below it The spinous processes are then partially divided, with forceps for that purpose, and broken down so that the tip of one comes in contact with the base next below it This completes all that is necessary to do to the bone

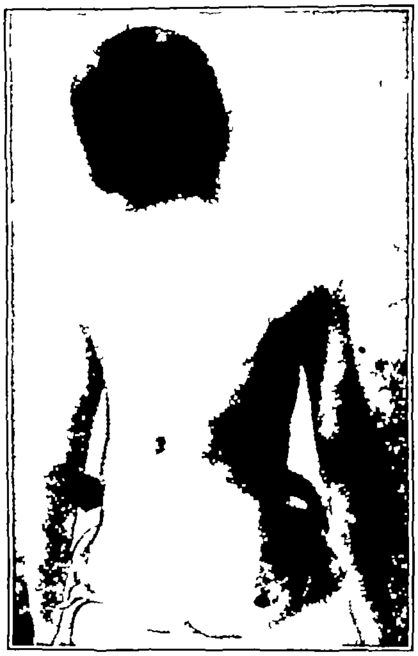

Fig 2 (Case 1) —Condition after operation

The periosteum and ligament which have been separated are then brought together and sutured in the center with interrupted ten day chromic catgut The skin wound is closed with continuous ten day chromic catgut Dressings and brace or jacket are applied

The importance of cureting the lateral articulation is evident, as it insures a fusion of bone at that point Turning a piece of bone down from one lamina across to the next below prevents any tissue from falling between the laminae, thus insuring their fusion, while the importance of the transposition of the spinous processes is obvious With the closure of the periosteum in the center, we have practically a periosteal tube filled with fresh, healthy, bleeding bone in uninterrupted contact from one end of the operative field to the other, insuring a fusion of the lateral articulations, laminae and spinous processes

Immediately after operation a brace or jacket is applied, maintaining as much correction as is comfortable to the patient My own preference is a steel brace which has already been made and fitted before operation The patient is kept in bed for eight weeks, and the brace is worn for one year

In six of these cases there was conspicuous deformity, and such weakness in three, that the patients could not sit up unaided, much less walk All of them have been given a much better posture, much more stability, and, it is believed, protection from a progressive increase of deformity and probably have been saved from the necessity of wearing a brace or jacket for indefinite periods

I can see no possible disadvantage in fusing even longer segments of the spine than in these cases, in fact, I think in some it would have been better to make

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* Read before the Section on Orthopedic Surgery at the Sixty Eighth Annual Session of the American Medical Association, New York June 1917

a longer fusion If, as seems probable, such an operation can prevent these conspicuous deformities, it should be done in many of these cases and earlier, before such irreparable damage has taken place

REPORT OF CASES

Case 1—H H, boy, aged 6, who had infantile paralysis at 11 months, was admitted to the hospital, June 20, 1914 There was loss of power in all muscles of the right thigh and leg, there was some power in the external rotators, abductors and rnal hamstring of the left leg, but very slight power in calf and long flexors, there was complete loss of power in all the other muscles Muscles in the right lumbar region of the spine were extensively involved, and there was a marked dorsolumbar curve to the right with marked rotation, the patient was unable to sit up at all without support. At the operation, June 23, 1914, a fusion was done from the tenth dorsal to the fourth lumbar vertebrae, both inclusive The wound healed without complication, and there has taken place a fusion throughout the operative field, preventing any increase in deformity and increasing the stability of the spine so that sitting unaided is possible Support was worn for one year afterward, and with braces applied to legs the patient is able to walk Figure 1 shows the patient before operation and Figure 2 after operation

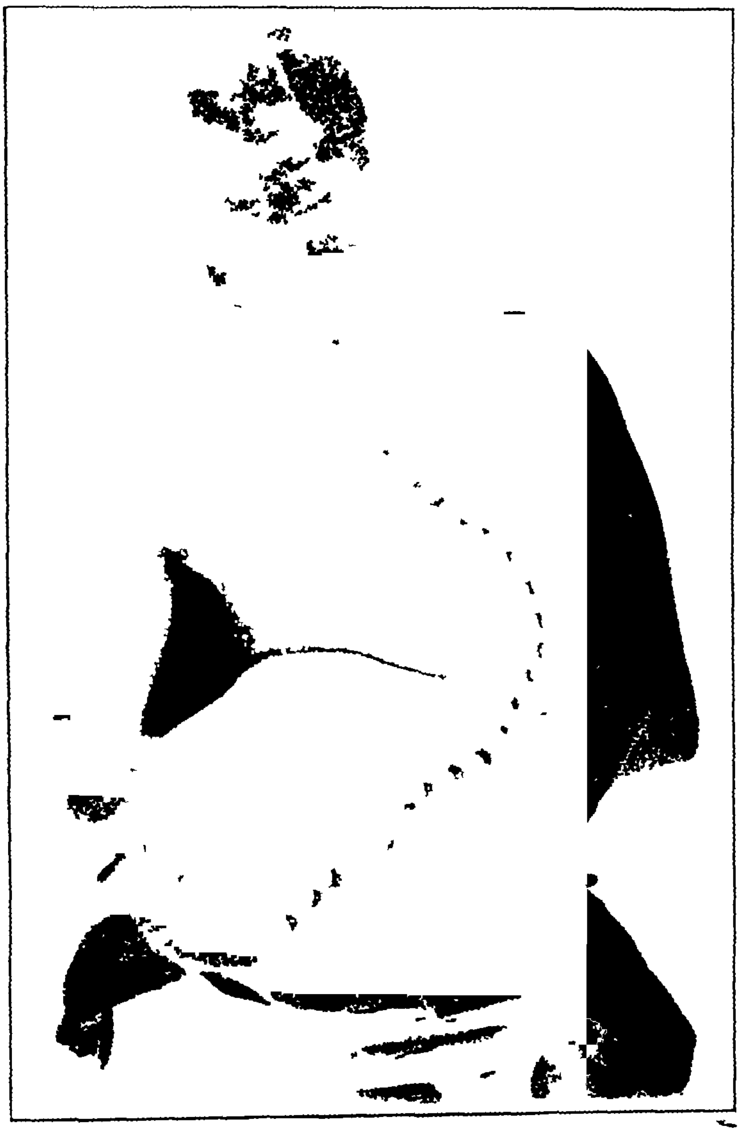

Fig 3 (Case 2)—Position assumed by patient on attempting to sit

Case 2—J K., girl, aged 14, entered the hospital, April 27 1915 She had infantile paralysis at 3½ years of age, both legs being extensively involved with conspicuous deformities and extensive involvement of the spine, permitting a right dorsolumbar curve with marked rotation She had never been able to walk or sit up since paralysis Figure 3 shows the position assumed by the patient on attempting to sit, even this was not possible without holding herself up by her hands After correction of the leg deformities, a spine fusion was done, Nov 3, 1915, extending from the eleventh dorsal to the fourth lumbar vertebrae, inclusive Fusion is complete throughout the operative field, and she has capacity now to sit up without assistance and, while I do not believe a sufficient number of vertebrae were included in this case, at the same time the patient is immensely improved Figure 4 was taken one year after operation, with braces on her legs, the patient is able to walk She still wears a light steel support to her spine

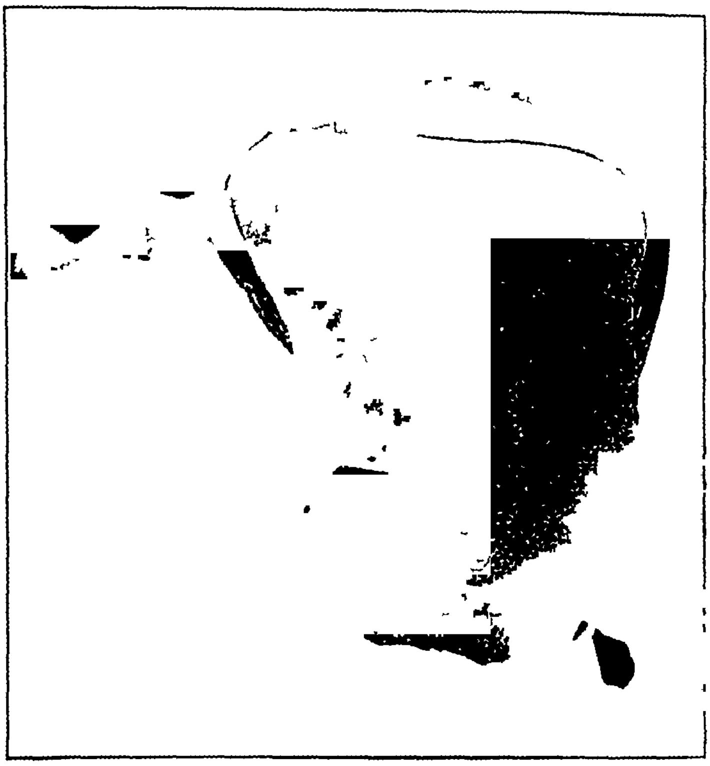

Fig 4 (Case 2)—Condition one year after operation

Case 3—C R, boy, aged 14, had infantile paralysis at the age of 5, with extensive involvement of both legs and the spine and a dorsolumbar curve with convexity to the right and with marked rotation January 19, a fusion operation was done from the ninth dorsal to the third lumbar, inclusive. Fusion is complete, progress of deformity stopped, and the stability of the spine much improved Figure 5 was taken after operation Photograph before operation was not obtainable

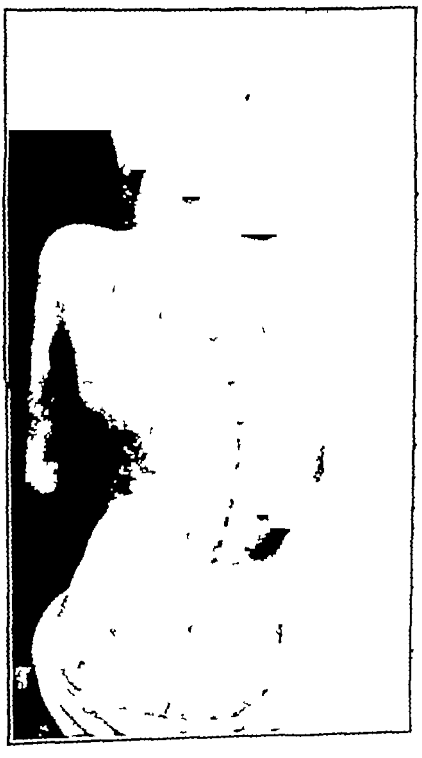

Fig 5 (Case 3)—Condition after operation

Case 4—W D, boy, aged 6, had infantile paralysis at 2 years of age, with extensive paralysis of both legs The spinal group of muscles permitted a marked dorsolumbar curve to the right with rotation The patient was admitted to the hospital, May 1, 1916 Fusion operation from the eighth dorsal to the third lumbar vertebrae, inclusive, was performed, May 19, 1916 Complete fusion was secured, with marked improvement, no progress of deformity was detected Figures 6 and 7 show the condition before and after operation

Case 5—S S boy, aged 6½ years, had an attack of infantile paralysis at 4 years leaving extensive paralysis of both legs and the spine The patient never had walked or been able to sit up The position when the patient attempted to sit up is shown in Figure 8, taken before operation Deformities of the legs were corrected and a spine fusion done, July 6, 1916, from the sixth dorsal to the third lumbar While there has been marked improvement evidenced by the fact that the patient can now sit without support, and with braces on his legs is able to walk, it is possible that a more extensive fusion might have been better However, there can be no question that progress of the deformity has been checked, and improvement is marked In such a case, of course, operation should have been performed long before such conspicuous deformity developed Figure 9 was taken after operation.

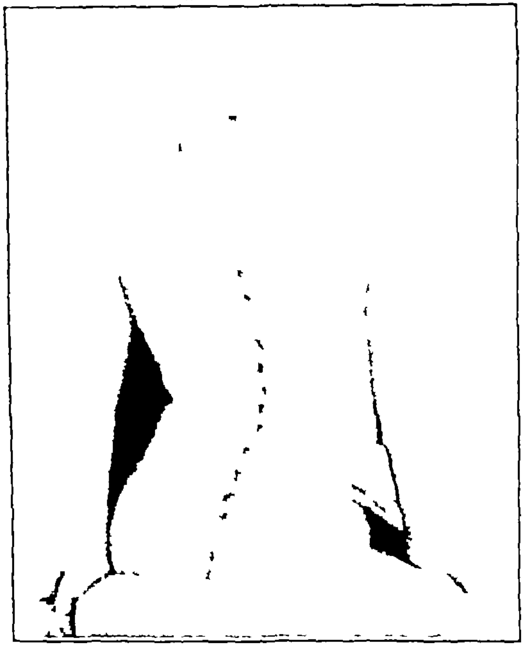
Fig 6 (Case 4)—Condition before operation

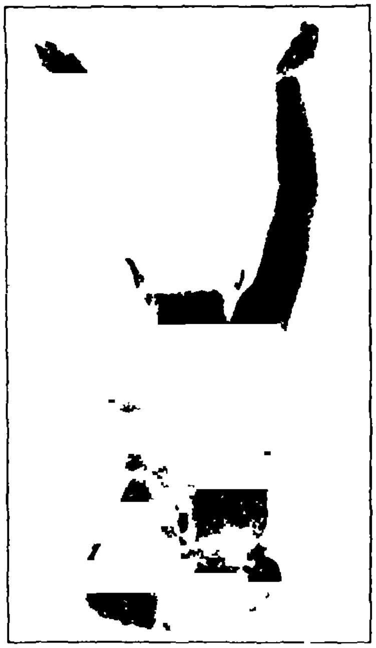
Fig 7 (Case 4)—Condition after operation

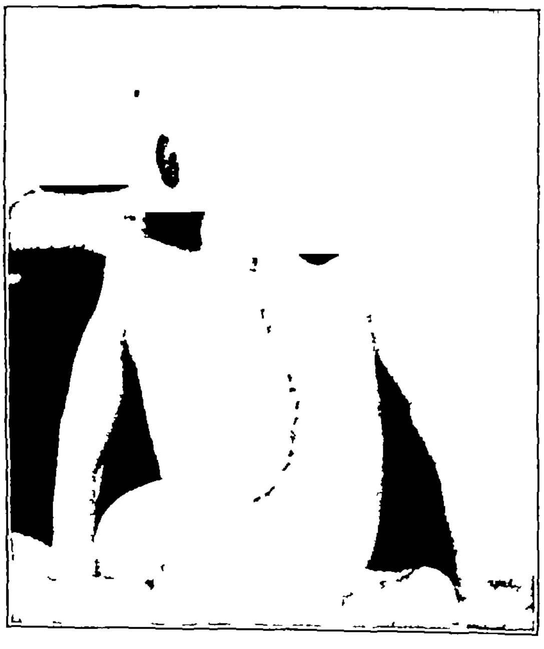
Fig 8 (Case 5)—Position assumed by patient on attempting to sit

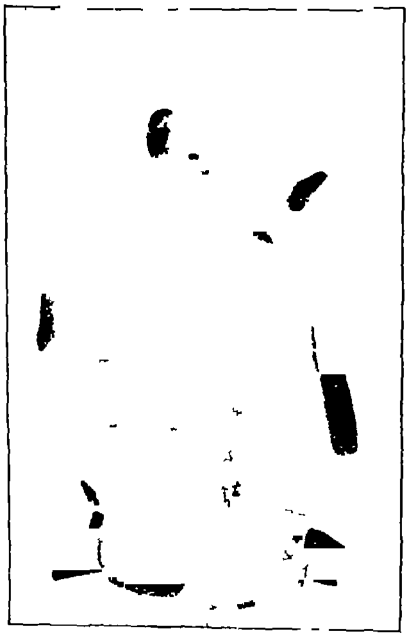
Fig 9 (Case 5)—Condition after operation.

Case 6—J D, boy, aged 16, had infantile paralysis at 1 year with complete paralysis of one leg, with the left spinal group affected, permitting a marked dorsolumbar curve to the left with rotation The patient was unable to sit without assistance. Spine fusion was performed, Dec. 13, 1916, from the tenth dorsal to the third lumbar Marked improvement in both position and stability of spine followed In this patient, also, a spinal fusion should have been done earlier in life Figures 10 and 11 show the condition before and after operation, respectively

Case 7—F D, boy, aged 9 had infantile paralysis at 4 years, leaving an extensive paralysis of the right leg and right spinal group, permitting a dorsolumbar curve to the right with marked rotation Spinal fusion from the seventh dorsal to the fourth lumbar was performed, July 18, 1916 Complete fusion was obtained and improvement was marked Figures 12 and 13 show the condition before and after operation, respectively

Case 8—W B, boy, aged 16, had infantile paralysis at 2 years of age. The right quadriceps, left anterior tibial and peroneal groups of muscles were affected, and also the right spinal group, permitting a right dorsolumbar curvature with marked rotation Spine fusion was performed, Dec 29, 1916, including the eighth dorsal to third lumbar Fusion was complete and improvement in both positions and stability of spine resulted Figures 14 and 15 show the condition before and after operation, respectively

130 East Thirty-Sixth Street

ABSTRACT OF DISCUSSION

Dr. Emil S Geist, Minneapolis How many vertebrae should be fixed?

Dr Fred J Fassett, Seattle I think we all agree with Dr Hibbs that it is bad for a patient to wear a body support longer than is necessary We could go further and say that is difficult to find any form of body support which in a paralytic scoliosis, will do the work. I have done only the bone splinting operation In such cases, even where the splint has firmly healed in place, it has not had the slightest effect on the curvature or the rotation If any operation would control a paralytic scoliosis it would be one which produced a perfect mass of new bone about the processes This is what the operation used by Dr Hibbs appears to do

Dr. John Ridlon, Chicago I should like to have Dr Hibbs say, if he will, why he did not make an effort to correct these spines before doing the fixative operation These spines can be considerably, and sometimes completely, corrected, but the problem is to hold them in the corrected position His operation would seem to be the way of holding them there, but why not do the other thing first?

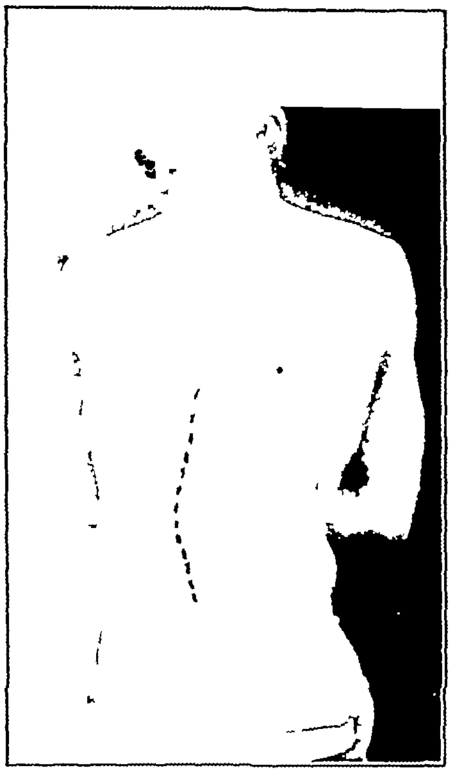
Fig 10 (Case 6) —Condition before operation

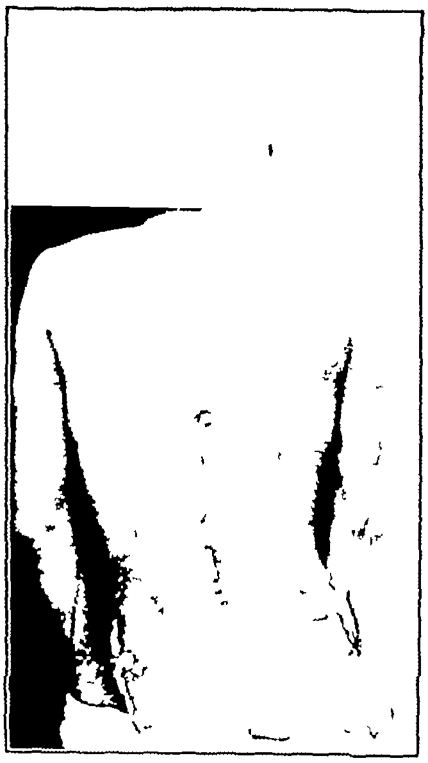
Fig 11 (Case 6) —Condition after operation

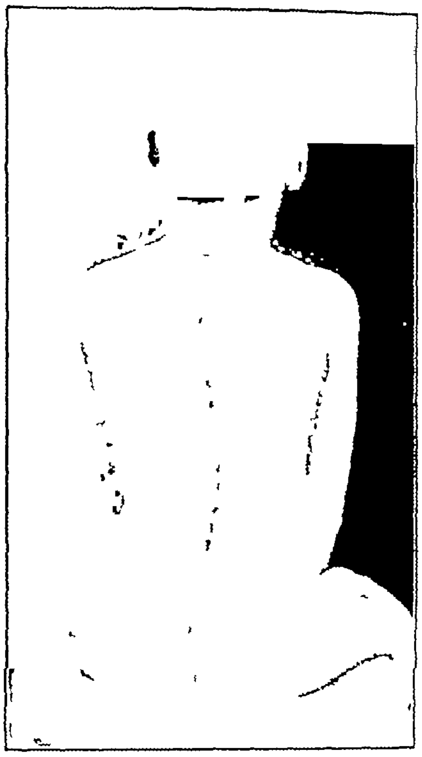
Fig 12 (Case 7) —Condition before operation

Dr. Horace R. Allen, Indianapolis: From time to time there come into our practice children and adults with horrible scolioses due to injury I have had cases in which the patient had been burned, and the resulting cicatricial tissue would pull them over, and when the scar tissue was deep there was almost no way to get them straightened I should like Dr Hibbs to say whether he thinks the artificial production of *scar tissue on the convex* side might not be of benefit by contracting and holding the spine straight Scar tissue is inelastic, as every one knows, and if it is deep enough and properly located it will be strong enough to serve as a substantial human tissue splint, and will in a way serve as a means of holding the trunk erect If scar tissue will produce scoliosis, it is only fair to make it serve as a means of correcting it

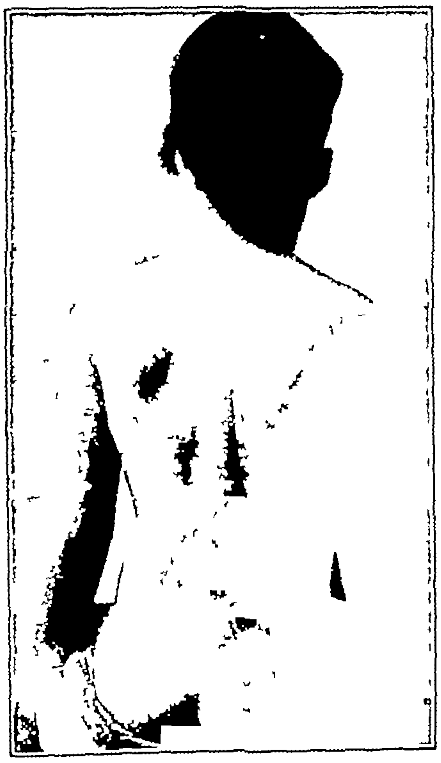
Fig 13 (Case 7) —Condition after operation

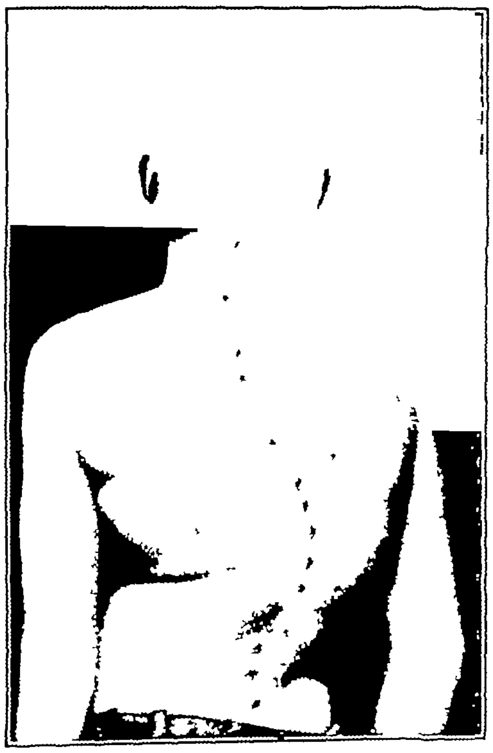
Fig 14 (Case 8) —Condition before operation

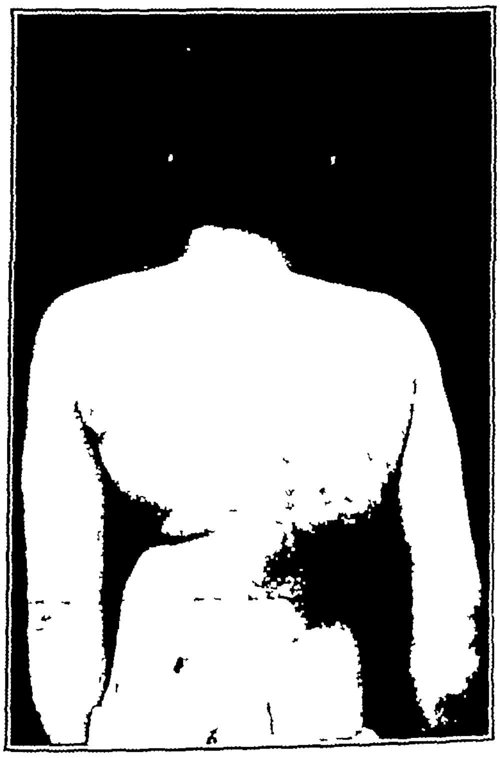
Fig 15 (Case 8) —Condition after operation.

Dr. John Ridlon, Chicago Some scar tissue stretches instead of contracting, and it is not very good procedure to try to straighten a scoliotic spine by putting scar tissue on the convex side

Dr Albert H Freiberg, Cincinnati I commend what seems to me an excellently conceived procedure for these cases, and it seems to me, also, that it would be no mistake to operate in these cases earlier than has been done I would regard this as the one exception that I might be *willing to* make to operating on paralytic deformities early Whatever we may feel with regard to the relative merits of the bone grafting operation and the operation of Dr Hibbs for Pott's disease it seems to me that this would be the operation of choice for paralytic scoliosis because it attacks the deformity at the periphery of the curve which is supposed to be the chief point of merit in any fusing operation for Pott's disease There is a large question that Dr Hibbs will have to decide for us and that is whether the correction he obtains will endure It seems to me that there is abundant reason to doubt that since there is inequality of muscular action which will persist presumably as long as the child lives It is a question whether the response to muscular pull on one side and absence of it on the other will not eventually cause a yielding of the vertebrae and an increase of the deformity

Dr E D Ebright Wichita Kan For the class of cases shown I think Dr Hibbs operation is a most important advance Since last fall I have seen forty-two of these scolioses that if they had been allowed to go on would have become exactly the type of case represented by the worst picture shown by Dr Hibbs I think the necessity to do that operation however is a reproach to the medical profession for these deformities can be prevented if the disease is taken in time and properly treated As Dr Freiberg says the paralyses are equal on both sides and the back is as liable to slump one way as the other The fusion operation is much preferable to the splinting operation which controls the spine in flexion and extension only while this method stops side bending as well

Dr. Walter Truslow Brooklyn We have watched these cases this summer and have prevented the deformity and we have seen the strength slowly come back under protection and carefully guided muscle training Of course we cannot yet know the ultimate result

Dr. James W Sever, Boston It is not a question of muscle training over a period of a year, it is a question of holding the corrected position in these cases by adequate apparatus over a period of ten or fifteen years If one talks of holding them for six months or a year only one has not the correct conception to base results on

I was glad to hear what Dr Ebright said but I think that he is an optomist, especially with regard to correction of scoliosis due to infantile paralysis If he knows of any method to prevent its increasing in infantile paralysis I should like to know it

Dr. Russell A Hibbs New York The question asked by Dr Geist, as to how many vertebrae to fuse I would answer by saying that it depends on the extent of the curve In some it was only necessary to fuse five or six, and in others as many as twelve depending on the extent of the curve and the amount of paralysis No one would contemplate doing the fusive operation on a child whose spine was only temporarily affected We wait and see the amount of permanent damage done by the infection

In answer to Dr Freiberg's question as to the permanency of the correction of these deformities, I would say that a longer time must elapse before a definite answer can be given My own feeling is that it may be permanent.

In answer to Dr Ridlon's question as to whether corrective work is done before operation it is and should always be I feel, however, that if a longer experience proves that a fusion operation will permanently prevent these deformities it should be done earlier

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Imports of Senna.—Only since the beginning of the war has senna become an article of export from Aden to the United States, according to Consul Addison E Southard at Aden (*Commerce Reports*, July 2, 1917) The first shipments were made in the second quarter of 1916 and amounted to 31 273 pounds Smaller shipments were made during the third quarter of the year In the second quarter of 1917 the shipments amounted to 82,868 pounds, valued at $42,407, ranking second in value of articles exported to the United States from Aden The crude drug comes to Aden from the Yemen and other Red Sea Arabian provinces and the poorer grades from Abyssinia and French Somaliland At Aden it is cleaned before export, Indian women being employed to pick it over and throw out twigs, discolored leaves, etc.

REPORT OF AN OUTBREAK OF DIPHTHERIC WOUND INFECTION AMONG RETURNED SOLDIERS

J G FITZGERALD, M B
Major, Canadian Army Medical Corps Associate Professor of Hygiene, University of Toronto, Faculty of Medicine
AND
D E ROBERTSON, M B
Major Canadian Army Medical Corps Assistant in Surgery University of Toronto Faculty of Medicine
TORONTO

We have been unable to find, in the literature accessible to us, references to epidemic outbreaks of wound infection due to *Bacillus diphtheriae* The cases which have come under our observation during the past six weeks have therefore been of considerable interest

For some months, wounded men of the Canadian Expeditionary Force on whom amputations of arms or legs or both were necessary have been returned to Toronto for further orthopedic treatment Such patients were under the care of the Military Hospitals Commission Command, 'D" Unit, to which one of us (D E R) is attached for duty

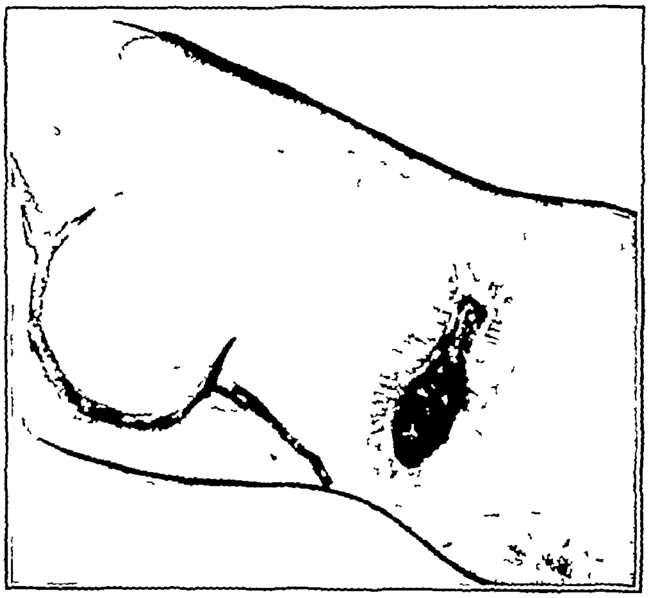

Fig 1—Diphtheric infection of inner side of left leg The sinus is sunk (all around outside edge) below the normal level of the skin The sinus (inside) is about one eighth inch deep from its outside edge Swelling is prominent.

During the first week in May, 1917, as a result of a thorough examination of suppurating stump wounds, one or two cases were observed which strongly suggested diphtheric infection One of us (D E R) made a clinical diagnosis of skin diphtheria, ordered a bacteriologic examination, had the man isolated, and diphtheria antitoxin was administered

May 19, 1917, this man (who belonged to an infantry battalion) was admitted to the isolation department of the military base hospital, Toronto, suffering from a diphtheric infection of a leg stump The patient had a reamputation of the leg, March 31, 1917 For some time his stump did very well About May 11 his stump showed signs of infection, and a bacteriologic examination revealed that the infection was due to *B diphtheriae* As soon as the patient was admitted to the base hospital, one of us (J G F) as Sanitary Officer No 2 in Military District No 2, commenced a thorough investigation of all infected wounds, stump or other, in returned men of the Canadian Expeditionary Force who were in hospital or were outpatients at any of the military convalescent hospitals in Military Division No 2 Further, nose and throat swabs were taken from all of these patients and from all other contacts, including the personnel, medical officers, nursing sisters and men

Between May 20 and June 7, 1917, sixty-seven men with suppurating wounds, chiefly amputation wounds, were swabbed Of this number thirty-two were found to be suffering from *B diphtheriae* infection In addition to these wounded men who were so infected, a nursing sister with a slight wound of one index finger was also discovered to be suffering from diphtheric infection of the finger A careful investigation revealed the fact that this nursing sister had been doing the dressings of men who were suffering from suppurating amputation wounds She had not been in the habit of wearing rubber gloves while doing these dressings She observed after a short time that a slight abrasion on her finger became infected It was learned that among others she had dressed the wounds of the first cases of this condition which were discovered When she was assigned to duty in the hospital in which these patients were being treated she was not infected Shortly after commencing the work she became infected, and was undoubtedly infected by one of the men whose wounds she was dressing It was at first strongly suspected that she was responsible for the outbreak Very soon, however, patients were found whose wounds had never been dressed by the nursing sister in question and who had, as a matter of fact, been returned to Canada after this nursing sister was sent to the isolation department of the base hospital Two or three cases were discovered in men immediately on their arrival in Toronto from overseas, and they gave a history of having had suppurating wounds for some time before returning to Canada

It was extremely probable, therefore, that patients with diphtheric wound infection were being returned to Canada from overseas Since a routine bacteriologic investigation of all cases of suppurating wounds had not been made, it was impossible to learn who was the original source of infection

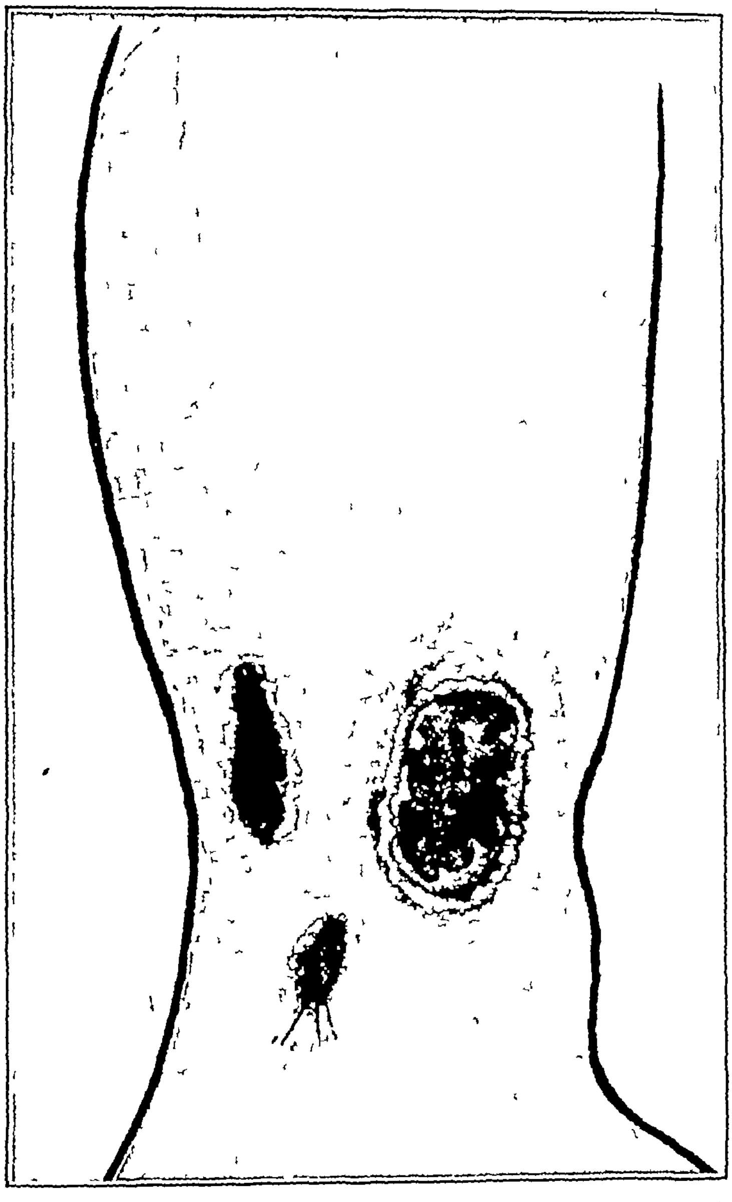

Fig 2 —Staphylococcus pyogenes aureus infection, shrapnel wounds of right leg above ankle The small sinus to the left is about one eighth inch deep, the large sinus is about one sixteenth inch deep

Of the first twenty patients investigated, several had been in Canada for some time It seemed possible that in some of these cases infection may have been transferred from one man to another, or in certain instances acquired while the men were on pass We have been informed also that some of the men removed their dressings while they were out on pass to show the stumps to friends Infection might, of course, have taken place under such circumstances while the men were away from the hospital

Since it has been observed that possibly 1 or 2 per cent of normal healthy persons are carriers of *B diphtheriae* it was a matter of interest that as a result of the bacteriologic examination of the nose and throat swabs of all the patients examined and of the contacts only two carriers were found One of these men was a healthy carrier, the other was a man with a large infected wound of a leg stump which infection was due to *B diphtheriae,* and he had probably transferred the infecting micro-organism from his leg stump to his nasal mucous membrane Forty-three suppurating amputation wounds were found to be infected with other micro-organisms, chiefly *Staphylococcus pyogenes-aureus* Of the men with wounds infected with *B diphtheriae,* six at least had what looked like diphtheric membranes, and clinically they somewhat suggested diphtheria because of the toxic symptoms, which, however, were much less marked than in the ordinary clinical types of diphtheria Not a single clinical case of diphtheria with infection of the mucous membrane of the mouth, nose or throat was observed in this outbreak

The six men who had most marked symptoms suggesting skin diphtheria all improved greatly after antitoxin was given The first man so treated noted the greatest improvement in his stump within forty-eight hours after antitoxin was administered The pain and swelling and brawny induration were less evident

One of the most important points from the clinical aspect is that an infection due to *Staphylococcus pyogenes-aureus* may so closely resemble infection due to *B diphtheriae* that without a bacteriologic examination the nature of the infection cannot be determined This is illustrated in the wash drawings which have been made of a case of wound infection due to *B diphtheriae,* and of another caused by *Staphylococcus* *pyogenes-aureus* Clinically they presented almost exactly the same appearances

The types of *B diphtheriae* found in cultures of some of these cases are shown in the photomicrograph Granular forms were found in a number of cases, these organisms grew well on blood serum, and on this medium showed the typical morphology They did not grow on ordinary lemco agar In one or two instances, organisms which grew as granular types on blood serum appeared as solid forms on agar

The wounds in which the infection was due to *B diphtheriae* invariably began to clear up when antitoxin was administered, as was done in all cases Such cases had shown no improvement whatever when an acid solution of hypochlorite (Lorain Smith), etc, was used alone As soon as the body fluids became strongly antitoxic, improvement was noted Experiments to determine the virulence of seven of the strains of *B diphtheriae* causing these infections have been undertaken

From the culture isolated in the case of P E, a man suffering from an infected gunshot wound of the upper forearm a toxin was produced, which in a dose of 0 5 c.c. killed a guinea-pig weighing 250 gm in thirty-six hours Another guinea-pig of the same weight was given a similar dose of this toxin, and in addition 1,000 units of antitoxin The second guinea-pig was kept under observation for two weeks, it gained in weight and showed no paralyses Several other strains tested showed somewhat less virulence

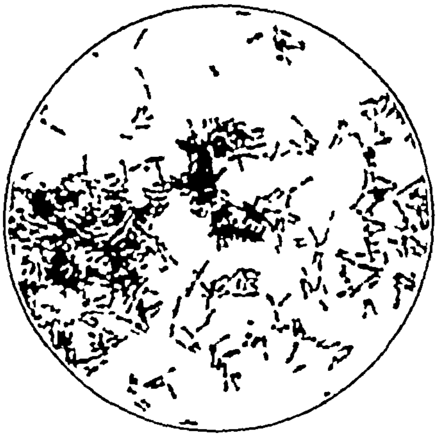

Fig 3 —Culture of B diphtheriae isolated in Patient P E granular types especially numerous

The length of time required to clear up these infections varied considerably One patient gave two successive negative cultures one week and a half after his infection was first determined, and he was given appropriate treatment Twenty-three of the twenty-eight patients first observed had two successive negative cultures and were discharged from hospital in six and one half weeks or less The average stay in isolation of these first twenty-three patients was thirty days Five of the original twenty-eight patients still gave positive cultures more than six weeks after the nature of the infection was ascertained

The treatment in all cases was practically the same The men were isolated, were given diphtheria antitoxin, and their dressings were done with a rigid regard for asepsis It has also been recommended that in future a routine bacteriologic examination of all suppurating wounds be made, also, that in no case should dressings of infected wounds be undertaken without rubber gloves being worn It is regretted that because of the pressure of other work a Schick reaction could not have been done on all these cases

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Responsibility of Medical Staff—The commanding officer of today, who is wise, instinctively acts according to the sentiment of Gen Winfield Scott "I am in the habit, myself, when on duty with troops, of paying great deference, and even of yielding my opinion, on matters deeply affecting health and life, to the advice of my medical staff"—Lieut.-Col. C C McCulloch, Jr., U S Army The Scientific and Administrative Achievement of the Medical Corps of the United States Army, *The Scientific Monthly*

CONICAL CORNEA, OR ANTERIOR MYOPIA *

EDWARD JACKSON, M D

DENVER

This subject, last brought before the section in the valuable symposium by Burnett, Sattler and Hermann Knapp, seventeen years ago, is of great scientific and practical interest, and our knowledge of it is still fragmentary It has broad relations with other pathologic conditions of the eye and with more general problems of nutrition The phrase "anterior myopia" is suggestive of relations to the larger class of posterior myopia and the process through which the great majority of cases of myopia develop Both keratoconus and posterior or axial myopia arise from the pathologic distention of the sclerocorneal coat In their production, states of general nutrition and local conditions both share, but to quite different extents Axial myopia has been the subject of extended and thoughtful study, especially by our colleague, Dr S D Risley The succession of events, eye-strain, uveal congestion, scleral softening and distention, and passage of refraction from hyperopia to myopia have been often watched Especially has astigma been noted, as an important factor in the production of eye-strain, the eyes passing, as Risley has phrased it, "from hyperopia to myopia through the turnstile of astigmatism"

The use of the eyes for near work is also recognized as a very general condition of the causation and progress of myopia General diathetic diseases have also been considered to cause myopia Batten[1] made a strong argument for the connection of myopia with general disease, and reported seventeen cases in support of this view, mostly of myopia arising in connection with cardiovascular disease The share of general impaired nutrition in causing myopia has not been so well demonstrated as the share of near eye work and strain from astigmia, but it seems necessary to assume such a factor to account for the fact that in many patients astigmia, eye-strain and retinochoroidal hyperemia leave undiminished hyperopia, while others become less hyperopic or myopic

In the production of keratoconus the same factors may be concerned, but with far different relative importance In anterior myopia, conditions of lowered general nutrition seem to be of first significance, anemia, acute general disease, chronic diathetic diseases, and impaired nutrition from many causes seem clearly associated with the beginnings of conical cornea These may from the first cooperate with eye-strain, and later certain mechanical factors perpetuate and increase the trouble, but conical cornea rarely, if ever, begins when the patient is in robust general health It is easy to see why the nonvascular cornea should especially suffer from lowered nutrition, while the most vascular portion of the sclera at the posterior pole of the eye should be most involved in a process, marked by active hyperemia In axial myopia the runt of the pathologic process falls near the posterior pole of the eye and near to the temporal side of the optic disk The influences that produce keratoconus show little or no effect except toward the center of the cornea well removed from the vascular limbus The beginnings of keratoconus are not closely associated with near work for the eyes, although after the defect has come into existence, and the eye is crippled for distant vision, the same vicious circle is established as in axial myopia, and the deterioration is likely to be more rapid and to go much farther because of the presence in keratoconus of high and variable astigmia

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* Read before the Section on Ophthalmology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June 1917

[1] Batten Ophth. Rev, 1892, p 1

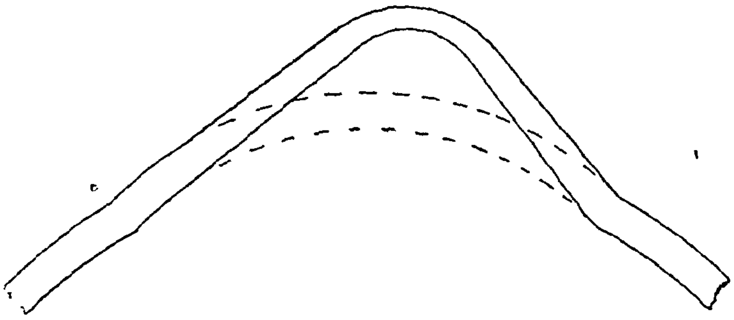

Fig 1 —Diagram representing bulging of conical cornea of 2 mm with thinning of apex

The conditions under which keratoconus begins are often difficult to determine But in all cases that I have investigated carefully in this respect there has been a clear history of some antecedent severe impairment of nutrition

One patient had suffered from extreme epistaxis, another from many attacks of epistaxis resulting in anemia, another had suffered from marked anemia from other causes, and three others first noticed defective vision while recovering from typhoid fever One began after a severe attack of pleurisy Others traced the beginning of the trouble clearly to scarlet fever and measles, although no history of special ocular inflammation at the time could be obtained, and there was no evidence of keratitis A woman of 40 came out of two years of invalidism with astigmia of 5 and 6 D incapable of perfect correction, although there was no evidence that her sight had been defective before that A poorly nourished girl rapidly developed conical cornea at puberty

This importance of generally depressed nutrition in causing keratoconus is also illustrated in the fact that most cases are bilateral, thirty-one out of forty-eight Of the remaining seventeen, one patient had lost one eye probably from conical cornea, and the operations done for it, and in six others there was evidence that the eye, which was not counted as having conical cornea, had at one time been disturbed by the same process, but had soon regained a nutritive equilibrium retaining good vision with moderate astigmia That is, of forty-eight cases, thirty-eight were really in the beginning instances of binocular disturbance The importance of impairment of general nutrition in causing keratoconus seems certain

THE MECHANISM OF KERATOCONUS

Plaut[2] reported a case of conical cornea in which the affected part of the cornea was greatly thickened, and experimentally produced in rabbits a condition resembling conical cornea in which the membrane was greatly thickened But the great mass of evidence indicates that thinning as well as softening of the tissue occurs so that it yields before normal or even diminished intra-ocular pressure

Salzmann[3] reports examination of a keratoconic eye in which the thinnest part of the cornea, the apex of the cone, was 0 17 mm in thickness, one-fourth or one-fifth the normal He cites seven other reports of similar observations in which the apex of the cornea was found thinned to one-half or one-third the normal thickness The ease with which the highly conical cornea can be indented by the lid margin, or altered in shape by lid pressure, makes it certain that the essential change in keratoconus includes thinning of the cornea with distention

The actual protrusion in a case of conical cornea is generally much less than commonly occurs in posterior myopia A protrusion of 1 mm makes a very marked conicity My notes show no case of protrusion of the cornea of over 2 mm Yet that lengthening of the anteroposterior axis of the eyeball would cause only 6 D of myopia Anterior myopia is to no important extent axial It is preeminently myopia of curvature (Fig 1) The protrusion rarely involves the whole cornea It often affects little more than one-half the area In a few chronic cases of gradual development the whole cornea is altered in shape, and in some others the protrusion blends so gradually into the conicity of the cornea that the appearance suggests involvement of the whole cornea in the pathologic distention Often the pathologic bulging is distinctly marked off from the normal corneal curve Generally the apex of the cone is situated below and to the nasal side of the center of the cornea, often as much as 2 or 3 mm from the center I have never noted it exactly at the center This eccentric bulging gives the high astigmia that marks all cases of keratoconus The center of the protrusion may present a fairly regular spherical curve, although usually it does not But this center is so small that the light admitted through it is a very small proportion of that entering the pupil, and it may be so enormously myopic as to be far beyond the limits of correcting glasses or any possible usefulness in vision

Fig 2 —Corneal curvature modified by lid pressure produced by traction with tip of finger near the outer canthus

ASTIGMIA

Generally the apex of the cone does not come in front of the contracted pupil The patient is compelled to see through one side of the cone and so has to contend with high astigmia In the direction of a line radiating from the apex of the cone, the cornea is relatively or actually flattened In a direction at right angles to this, the tangent of a circle having the apex as a center, the curvature is progressively increased as the apex is approached Thus arises the high regular astigmia which with irregular astigmia characterizes the refraction of conical cornea Of forty-five cases of keratoconus given optical correction, all had marked astigmia The amounts of regular astigmia noted in these seventy-nine keratoconic eyes are given in the accompanying table

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[2] Plaut Klin Monatsbl f Augenh , February, 1900, p 65

[3] Salzmann Arch f Ophth (Graefe's), 67, 1

Almost as characteristic as the high degree of regular astigmia is its variability from day to day, or test to test, under variations of light, and its tendency to change from year to year, in amount, and to a less degree in direction The astigmia as indicated by

AMOUNTS OF REGULAR ASTIGMIA IN SEVENTY NINE KERATOCONIC EYES

Diopters of Astigmia	Number of Eyes
From 1 to 2	1
From 2 to 3	1
From 3 to 4	11
From 4 to 5	13
From 5 to 6	24
From 6 to 7	10
From 7 to 8	7
From 8 to 9	7
9	1
10	2
14	1
21	1
Total	79

the glass preferred also varies greatly from the curvatures of the corneal meridians as shown by the ophthalmometer Take the following case under observation thirteen years, while passing through college, medical school and hospital internship

Case 1—L. G W., aged 19 when first seen
Nov 6, 1903
Right, Ophthalmometer + 4 cy axis 120°
Lens — 3 50 Sph ⊃ + 2.50 cy axis 153°
Left, Ophthalmometer + 3 50 cy axis 60°
Lens — 5 ⊃ + 3 cy axis 10°
Dec. 26, 1908
Right Ophthalmometer + 4 cy axis 140°
Lens — 3.25 ⊃ + 0 75 cy axis 160°
Left, Ophthalmometer + 4 cy axis 65°
Lens — 4 50 + 2. cy axis 5°
Aug 29, 1910
Right, Ophthalmometer — 4 50 cy axis 130°
Lens — 3 75 ⊃ + 3 cy axis 170°
Left, Ophthalmometer + 4 45 cy axis 60°
Lens — 4 50 ⊃ + 2 cy axis 5°
Feb 28, 1914 This patient's refraction changed with the use of pilocarpin
Right, without — 3.75 cy axis 86° = 5/10 partly
With pilocarpin — 0 50 ⊃ — 3 50 cy axis 110° = 5/6 mostly
Left without — 5 50 ⊃ + 3 75 axis 5° = 5/6 partly
With pilocarpin — 5 50 ⊃ + 3 75 axis 5° = 5/6 mostly
March 2, 1914 Without pilocarpin
Right — 0.50 ⊃ — 3 cy axis 95° = 5/12 partly
Left — 5.50 ⊃ + 3 50 cy axis 5° = 5/6 mostly
March 6, 1914
Right — 2 75 cy axis 95° = 5/6 mostly
Left — 5 ⊃ + 3.25 cy axis 180° = 5/6 mostly
July 3, 1916 The eyes now became less variable and still required
Right — 3 cy axis 87°
Left — 5 cy ⊃ + 3.25 cy axis 180°

For reasons given below, the close correction of such astigmia, at least to the extent of securing the best vision, and the keeping of the correcting glasses closely adapted to the eye, is of great practical importance

EFFECTS OF LID PRESSURE

The effort to get the best vision is instinctive and persistent. It prompts the patient to try all sorts of experiments The presbyope goes through the "trombone performance" The patient with uncorrected astigmia twists his head until he looks through his glasses obliquely in a way that makes them give the greatest assistance, the myope with too weak glasses looks through them obliquely to increase their strength, getting all the theoretical disadvantages of a full correction with some very important practical ones added The myope without glasses partly closes his eyes, to lessen the circles of diffusion, thereby getting from the Greeks the name for his defect, which it retains today

The patient with keratoconus, especially if it be largely myopic, is likely to resort to similar pressure to overcome, so far as possible, the disadvantageous curvature of the cornea The long recognized "nipping" of the lids not only narrows circles of diffusion, it can also alter to a marked degree the corneal curvature, especially when the cornea is thinned and softened

Case 2—Miss G E F, aged 34, could change the curvature of her cornea equivalent to 1 D change of refraction without closing the lids enough to prevent watching the ophthalmometric images The effect was always to diminish the curvature in the horizontal meridian and increase it in the vertical meridian The latter however, was neutralized by the stenopaic effect of narrowing the palpebral fissure Her cylinders, which were
Right — 6 50 axis 120°
Left — 11 axis 120°
varied as much as 1 D either way in frequently repeated tests, and as much as 15 degrees in the directions of the meridians chosen The ophthalmometer reading indicated
Right — 5 cy axis 80°
Left — 5 50 cy axis 155°
at repeated observations

Fig 3—Face of patient at rest Note wrinkles about the eye of a man of 27

Observations on other patients show that the usual effect of "nipping" the lids is that given above to lessen the curvature in the direction of the palpebral fissure and increase it at right angles thereto, diminishing the myopia in the former and lessening the effect in the latter meridian An unusual way of making such changes in the corneal curvatures is illustrated in the following case

Case 3—A. M H, a schoolgirl, aged 12, had the following vision and refraction
Right 4/27 partly — 4 sph ⊃ + 1 cy axis 95° = 4/4
Left 4/100 and with — 9 sph. = 4/20
While not wearing glasses, she found she could bring up her vision so that she could see the blackboard by dragging on the outer canthus and upper lid of her *right eye with the* tip of a finger, as shown in Figure 2 In this way she brought up vision to 4/7 5 partly

This patient was seen regularly at intervals of from twelve to thirty months, and by the time she was 19 her myopia had increased 2 diopters

Case 4—K. F, man, aged 27, in 1903, had scarlet fever when 14, and was sick for a year afterward, from which period he dated his poor sight, which had gradually increased He had high conical cornea His corneas were almost clear, showing a very slight general haze, and the ocular fundus was normal The ophthalmometer showed

Right + 7 cy axis 130°
Left + 10 cy axis 80°

The following gave him the best vision

Right + 5 sph ⊃ — 8 cy axis 75° = 4/6
Left — 6 cy axis 80° = 4/40

He was not wearing glasses, having been unable to get any that helped him Vision with either eye without lid tension was probably about 4/100, but the instant his attention was directed to the letters, a curious distortion of the whole face occurred with lid tension that brought his vision up to 4/20 The change is shown in Figures 3 and 4

The apex of the cone was below the edge of the 4 mm pupil in each eye, and the lower part of each pupil (half for the right and two-thirds for the left) was myopic. The upper part of each pupil was hyperopic. In his attempts to see (Fig 4), the lower lid was pressed hard against the eyeball and stretched so that the edge of the lid went straight across the middle of the pupil. He was given correcting lenses, and warned of the importance of getting entirely out of the habit of compressing the eyeball with the lids

At the end of eleven months he returned with corrected vision right 4/6 and left 4/40, and his corneas entirely clear He had given up the habit of lid tension so completely that he could reproduce the effect very imperfectly and with special effort. It was eight years before he could come again wearing the same glasses, which now required change, and the left eye had developed high myopia with choroidal absorption

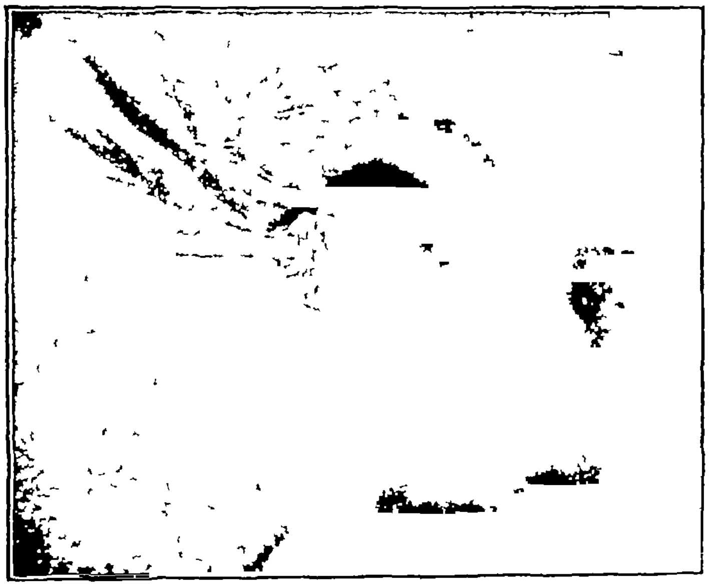


Fig 4 —Face distorted by strong contraction of orbicularis to improve vision by lid pressure on the cornea

Right + 4 sph ⊃ — 8 cy axis 72° = 4/6 partly
Left — 4 sph ⊃ — 8 cy axis 140° = 4/18

Since than I have not seen him, but have heard from him that the sight of his left eye "is almost gone, and the right eye is in bad shape"

The following case shows how even the posterior distention of axial myopia may not save the cornea from protrusion, or how the malnutrition and softening of the coats may involve both the posterior and the anterior pole

Case 5 —B G M, girl, aged 15, a bright student devoted to music, and strenuous in all she undertook, but anemic and "nervous," was brought to me for her eyes, Sept. 21, 1916 She had been wearing glasses since 8 years old, and now required them strengthened to

Right + 0 75 sph ⊃ — 1 25 cy axis 175° = 4/4 plus
Left + 0 62 sph ⊃ — 1 25 cy axis 5° = 4/4 plus

There was little choroidal disturbance, but the optic disks were red and slightly hazy The ophthalmoscopic readings were

Right + 1 50 cy axis 90° added to 43 5 D
Left + 2 cy axis 90° added to 44 D

There was some conjunctival hyperemia, burning and itching, in addition to the headache for which she came. She was under my care for four months and left with all symptoms relieved June 19, 1912, she returned, having been under good professional care in Chicago and elsewhere The strenuous educational process had been supplemented by social engagements The ophthalmometer now showed

Right + 1.25 cy axis 90° added to 44 D
Left + 10 cy axis 100° added to 49 D

The left eye was clearly suffering from conical cornea A — 10 cy axis 10° gave it vision of 4/60

She next came, Sept 14, 1912 The ophthalmometer showed

Left + 9 50 cy added to 52 D
Lens, Left + 3 sph ⊃ — 16 cy axis 145° = 4/15 partly

No marked change in the right eye, but

Right + 0 62 sph ⊃ — 1 12 cy axis 168° = 4/6 partly

Oct. 4, 1916, she came once more broken down in health, highly anemic, listless, hopeless, and almost blind She had been under treatment by various oculists in other cities There was a history of operations, corneal ulcers, and finally enucleation of the left eye. Vision in the right was less than 1/100, she was wearing a compress on it much of the time, and using eserin It had suffered from an "ulcer" last winter The ophthalmometer showed but little regular astigmia with a corneal curve of over 70 D, corneal radius about 5 mm A — 30 D sph lens gave vision of 6/100 There was a nebula near the center of the cornea The use of a bandage was almost stopped, being occasionally used for pain, the eserin was continued, and everything done to build up the general health of the patient

Jan 11, 1917, the eye felt better, and the iris was of good color and structure The ophthalmometer showed

+ 6 to + 8 cy axis 80°, added to 60 or 65 D

Hot bathing of the eye has been substituted entirely for the bandage The eye feels worst in the morning The patient is to keep the head elevated

Cases 6 and 7 —F B, aged 18, and his sister, aged 17, both came for conical cornea, with the history that every member of the family wore glasses They were both students, the brother then in college In all three eyes the area of protrusion was comparatively small and situated below the center The brother's correction and vision was

Right + 4 50 sph ⊃ — 7 cy axis 90° = 4/4 partly
Left + 4 sph ⊃ — 7 cy axis 100° = 4/15 partly

After eight years, the patient living on a ranch, these are

Right + 3 50 sph ⊃ — 7 50 cy axis 90° = 4/6
Left — 5 sph — 7 50 cy axis 85° = 4/12

The sister had only the right eye affected She had vision

Right + 1 ⊃ — 4 cy axis 38° = 4/6
Left + 1 sph ⊃ — 0 25 cy axis 90°

After four years she showed

Right + 2 sph ⊃ — 5 cy axis 55° = 4/4 partly
Left + 1.75 sph ⊃ — 0 37 cy axis 65° = 4/4 plus

These patients have taken proper care of their eyes, although living about 200 miles away so that they could be seen only at long intervals The same is true of the following case

Case 8 —Jan 29, 1910, S J G, aged 19, high school student, dated his poor sight to typhoid fever five years before The eyes had not grown worse since Both corneas were conical, the apex of each cone being fairly central, and the reflections of the rings of Placido's disk fairly circular The centers of the pupils showed with the ophthalmoscope a myopia of 20 to 30 D, and the margins of the dilated pupils in the direction of the radii hyperopia of 15 to 20 D The ocular fundus was normal in each eye, so far as could be determined The patient was put on the regular use of pilocarpin Lenses given

Right — 15 sph ⊃ — 8 cy axis 20° = 4/30
Left — 10 sph ⊃ — 5 cy axis 20° = 4/30

He was seen six months later with vision Right 4/60, left 4/12

Sept 12, 1914

Right + 3 ⊃ — 6 cy axis 25° = 5/15 partly
Left + 6 ⊃ — 1 cy axis 180° = 5/15

Jan 26, 1917 He comes several hundred miles to be seen once

Right + 4 ⊃ — 6 cy axis 25° = 5/15

Left shows keratitis, hazy with facet at apex of cornea 1 mm in diameter, no staining with fluorescein He has completed school and college, and is now teaching school He has used the pilocarpin continuously, but has not used his glasses sometimes during summer vacations

In this paper no attempt has been made to give any complete account of conical cornea or complete histories of any of the forty-eight cases on which it is based All of these cases have shown marked conicity of the cornea in some projection, asymmetrical except in Case 8 None of them has shown any marked choroidal disease or atrophic crescent except Cases 1 and 2 In the series of cases from which the forty-eight were taken, there were thirty-nine cases of myopia with 3 D or over of astigmia, and seventeen cases of hyperopia, with astigmia of 3 D or over None of the forty-eight patients, except Case 5, was subjected to operation, and all the worst cases have been included above

The points to which attention is directed are

1 Keratoconus arises from yielding of the cornea to intra-ocular pressure during a period of impaired nutrition commonly due to general disease

2 It gives rise to curvature ametropia, about which the ophthalmometer and the shadow test give little information of value for the selection of glasses

3 The subjective tests with lenses give widely variable results, and a decision as to the best lens is reached only after many trials, under varied conditions influencing the pupil

4 It is extremely important that glasses should give the best vision under the conditions under which they will be used without lid pressure, which is to be carefully avoided

5 The treatment should include

Every effort to build up and sustain nutrition

The continuous use of a miotic in the worst cases, usually pilocarpin

The avoidance of softening the cornea by any form of bandages

Under proper care operative treatment will rarely be needed

A NEW OPERATIVE METHOD FOR THE RELIEF OF ADVANCED CASES OF KERATOCONUS

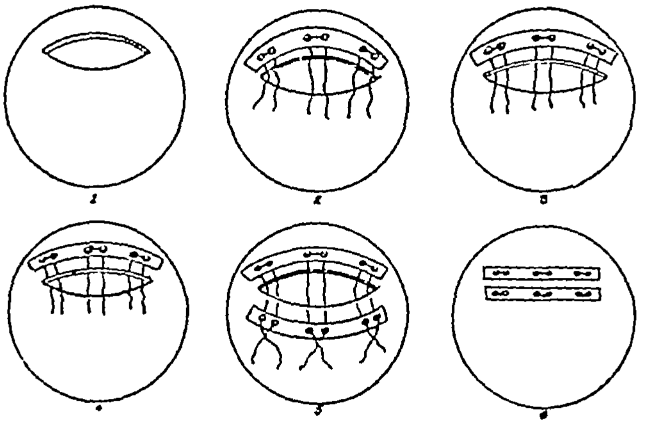
WITH REPORT OF TWO CASES *

MEYER WIENER, M D

ST LOUIS

Conical cornea was observed by Demours as early as 1747, and has been described by many authors since that time There has never been any satisfactory explanation as to its production or cause It is known that it is more frequent in females than in males, and is generally first noticed between the twelfth and fourteenth years of life The probability is that some disturbance of internal secretion is the most potent causative factor

Many operations have been devised for the relief of this condition, none of which has given entirely satisfactory results The earlier surgical attempts to relieve conical cornea were bent toward changing the refraction of the eye behind the cornea rather than to alter the cornea itself In 1817, Sir William Adams advised breaking up of the crystalline lens by needling Tyrrell suggested a still different procedure, that of performing a peripheral iridectomy, on the theory of there being less deformity toward the margin of the cornea than in the center, and consequently a peripheral pupil would be of advantage Critchett modified this a little later by permitting the iris to prolapse, and tying a ligature around it, thus distorting the pupil Frequent puncturing of the periphery of the cornea has also been resorted to for many years Von Graefe suggested the greatest advance for the relief of this condition by proposing that the epithelial coat of the apex be shaved off and then cauterized with silver nitrate, finally the floor of the resulting ulcer was punctured, the object being to try to bring about scar contraction with resulting flattening Bowman had previously excised a disk of corneal tissue from the apex with a trephine, but without any great success A number of cases in which he excised an elliptical piece were reported by Bader To prevent prolapse of the iris he passed horse-hair sutures through the cornea, previous to making the excision, afterward tying them over the edges of the wound This operation has probably been the one most frequently advocated of those procedures which we might term purely surgical The use of the electric cautery, or frequent punctures of the apex with a needle, being more simple and less dangerous, are the methods most often used today, when anything at all is advised Recently a case of marked flattening has been reported from the use of the high frequency current applied to the apex of the cone



Details of operation 1 Elliptic incision of cornea near margin 2 Gold strip with double armed sutures already in place ready to be passed through peripheral margin of cut 3 Sutures passed through peripheral margin of wound 4 Sutures passed through central margin of wound 5 Sutures passed through second gold strip 6 Gold strips in place after completion of operation.

The great objection to excision of the apex of the cone, or of a peripheral part of the cornea, has been the almost invariable prolapse of the iris into the wound with the sudden gush of aqueous, with its resulting infection, or irritation from an extensive leukoma adherens The method which I am proposing is an excision of the corneal tissue in such a manner as to avoid iris prolapse This I have succeeded in doing, and with fairly good visual results

As the cornea near the apex of the cone is so thin as to preclude the probability of a successful dissection, I have elected to excise a segment near the periphery, as best suited to the method The idea is to excise a segment of the cornea, including as nearly as possible its entire thickness, without puncturing Descemet's membrane, and then suture the wound Necessarily there as an unusual tension on the stitches

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* Read before the Section on Ophthalmology at the Sixty Eighth Annual Session of the American Medical Association New York June 1917

which would cause them to tear through almost immediately unless some extraordinary means were employed This difficulty is met by tying the sutures over thin gold plates, on the same principle as that employed in bringing together the gap in cleft palate This method of suturing was described by me at the 1915 meeting of the Academy of Ophthalmology and Oto-Laryngology

Gold strips 0 005 mm in thickness and 1 mm wide are used, with holes 1 mm apart, and just large enough to permit the passage of the smallest curved eye needles The length is cut according to the size of the wound to be sutured An elliptic incision is made in the cornea near the limbus, with a small, sharp scalpel The object is to go as deeply as possible without penetrating Descemet's membrane The length is about 8 mm and the width 3 mm

The apex of the part to be excised is then picked up with a tiny sharp hook, and the resection carefully begun The most important part of the dissection is to get a good start, as the apex of the ellipse can then be grasped with fixation forceps, and by putting the flap on the stretch, the layers of the cornea can easily be separated This separation can be readily accomplished by following, with the point of the knife, the white line at the point of attachment of the flap to the cornea By keeping the blade of the knife flat against the corneal surface, using only the tip, and alternately stretching and then separating, there is not much danger of entering the anterior chamber Double armed sutures are then passed around the first gold strip through the small openings, then in turn through the central flap of the wound, through the limbus flap, finally through the openings of the second gold strip placed on the opposite side, and then tied over this second strip with one tie The stitches are then alternately tied more firmly together until the wound is approximated Linen threads are an advantage on account of their strength The amount of tension which this form of suturing will withstand seems to be almost unlimited If there is no infection they will not pull through, provided the technic is good The technic is delicate and difficult, but can be acquired by any experienced operator with much practice and patience It is essential that the bored holes shall be polished in order that the stitches may slide easily I believe it to be an advantage purposely to puncture the anterior chamber at the periphery, away from the wound, after the sutures are all in place, and just before tightening and closing the wound, in order to permit easier approximation of the wound and facilitate healing with lessened tension The plates are left in position, with comparatively little irritation, for eight or nine days They are easily removed by simply cutting the loop over each gold plate, when the thread readily pulls through

The following is a brief history of the patient on whose eyes this operation was performed

M S, girl, aged 1 first came to the Jewish Hospital dispensary for treatment, April 30, 1915 She had a very pronounced case of conical cornea in both eyes with ability to count figures at 7 feet with the right eye and 18/100 with the left Her refraction was carefully determined, but no improvement of any value could be secured, minus lenses making letters clearer, but not bringing up the visual acuity by measurement. She was put on epinephrin chlorid, 1 1,000, three times a day, as we had seemingly had some good results in mild cases of keratoconus and keratectasia with this treatment, as recommended by Pontius It did not help, however, and, Feb 23, 1916, she was admitted to the Jewish Hospital, and the right eye operated on two days later March 6, the stitches and plates were removed, and, March 12, patient discharged from the hospital There was considerable photophobia and conjunctival redness for many weeks after the operation, but these slowly subsided

Sept 12, 1916, visual acuity had reached 18/100 in the right and fallen to fingers at 7 feet in the left. As the operated eye was considerably better than the left, or unoperated one, the patient begged to have the same thing done for the left

She was admitted to the hospital, Oct. 9, 1916, and operated on, October 11 A segment was excised from the lower quadrant, as in the right eye March 7, the stitches and plates were removed, and the patient discharged from the hospital, Oct. 29, 1916 November 28, the visual acuity was 18/100 in the right and 18/200 in the left. The visual acuity in the right has remained stationary, and in the left, March 8, 1917, had improved to 18/75

A peculiar phenomenon about this case is that while the patient asserts that a —4 0 D S to a —7 0 D S lens will improve each eye very much, she cannot be made to read farther There is a linear scar on each cornea in the lower quadrant which can readily be demonstrated but which does not disfigure the patient and would not be noticed by a casual observer I believe that there will be still further improvement with time, but if this should not develop, I shall advise excision of another segment The patient is willing

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS JACKSON AND WIENER

Dr Samuel D Risley, Philadelphia In the usual concept of axial myopia I believe we have been too prone to fix our attention solely on the pathologic changes at the posterior pole The posterior staphylomas, the macular atrophies, etc, because of their grave significance, have claimed our attention to the exclusion of other features frequently manifested in increasing or changing refraction of the dioptric system In a relatively large percentage of young people, especially young children, these changes in refraction occur without notable evidence of disease at the posterior pole Given a case of congenital anomaly of refraction, with or without, but usually with, some associated abnormality of binocular balance, the act of vision cannot be exercised without abnormal effort or strain Under this strain the vascular uveal tract becomes unduly congested, the intra-ocular tension rises, the circulation of the nutritive fluids is impeded and the nutrition of the globe impaired The relatively soft or tender sclera of childhood yields to the increased intra-ocular pressure and stretches or distends, whereas the tough and therefore resisting sclerotic of middle life fails to give way and we have the phenomena of so-called glaucoma

We need find no difficulty in regarding the resulting impaired nutrition of the cornea as an important factor in the changed curvature of the cornea, the shifting meridians, etc., which we so often are compelled to observe, or that in extreme cases the result may be conical cornea, or what I have frequently seen—a wave-like curve of that membrane instead of a demonstrable cone-like distention forward I quite agree with Dr Jackson that these conditions are prone to occur in people in impaired health, or in fat, flabby patients without resisting power, or in the underfed or sick

Dr E C Ellett, Memphis, Tenn I regret that I have had no experience with Dr Wiener's treatment of conical cornea, and must therefore limit what I have to say to the technic of this method of corneal suture, based on animal experiment exclusively This experience has impressed me with the difficulties of the procedure, to which I well refer under a number of heads

1 Illumination It is essential to have perfect illumination, preferably by a photophore or some other form of portable electric light

2 It was not possible for me to do this work without the magnification secured by some form of binocular loupe

3 The knife, preferably a scalpel, must be perfect.

4 It is necessary that the two cuts outlining the portion to be removed should penetrate the cornea to the same depth This requires care and experience

5 The removal of the portion included between the incisions is not especially difficult if the above precautions are observed

6 The difficulty of handling several sutures and two rather long plates without tangling things up is very great, and if one suture breaks in tying, it will greatly try the patience of all concerned

7 The last objection can be to some extent overcome by using a short plate, 3 mm in length, drilled with two holes to accommodate a single double armed suture

8 It would be still simpler to dispense with the plates, and pass each needle in and out along one edge of the incision, having the loop cross the incision at one end and the two free ends tied across the other end For this purpose, as well as for use with the suture plates, the needles and thread suggested by Kalt for corneal suture are most satisfactory The needles are round, not cutting, and make a wound which does not so readily cut out, although more difficult to push through the tissues than a cutting point

9 By slightly undermining the edges approximation is made easier, but I am not sure that it would not make infection more probable

One is surprised, in doing this and other work involving dissection or suturing of the cornea, to note the toughness of the membrane. It seems quite as capable of holding sutures as is the sclera

Dr. William H Wilder, Chicago The question of the causation of keratoconus is an interesting one It seems to me that the idea of a lack in general nutrition is not a sufficient explanation, for this condition of the eye is so infrequent, even in persons whose general nutrition is impaired and is seen in persons apparently in good health

I have always entertained the thought that there must be some anatomic peculiarity, possibly congenital, to account for the progressive thinning and subsequent bulging of the cornea That there is an actual anatomic change even at an early stage of the process is evidenced by the fact that the nerves seem to have suffered and there is a distinct lack of sensitiveness in the most prominent part of the cone Even before there is much bulging, this may be demonstrated by touching the tip of the conus with a probe, when it will be found to be quite insensitive Later when the cornea becomes thinner one may observe a pulsation of the tip, shown by a slight movement of the reflected images of the mires of the ophthalmometer as pointed out by Axenfeld and others

In advanced cases, with vision greatly impaired, it seems to me we are justified in resorting to operative procedures in an attempt to check the bulging or to improve the sight.

A method I have used in several cases with benefit is the following With a galvanocautery tip heated to a cherry red, four small incisions are made in the cornea from the limbus to within 2 or 3 mm of the tip of the conus, at points on the cornea corresponding to 12, 3, 6, and 9 on a clock dial These burns should extend through Bowman's membrane and widen out slightly as they approach the limbus The resulting contracting scars have a tendency to flatten out the central portion of the cornea which remains clear A somewhat similar method has been proposed by Dr Posey, who makes only one such radiating incision Care must be taken not to penetrate the cornea In the patients treated there was distinct improvement of vision, and the method does not interfere with any subsequent procedure that one may have to practice.

Dr. Edmond E. Blaauw, Buffalo How is it that Dr Jackson in a short time sees forty-five cases, and in other regions, at least in Buffalo, I have not been able to see forty-five cases in twenty years? There may be something in the region, in which we live. In Germany, too How can you make a diagnosis with this slight amount of astigmatism? I would like to ask Dr Jackson how often he found the hemosiderin ring? We should always keep in mind that we have in many instances a self-limiting disease I have seen many cases stop without apparent reason and nothing done in the way of operation In the cases of keratoconus we have most probably a form of hyaline infiltration of the substantia propria It occurs to me that we have to deal with a condition similar to nodular opacity of the cornea, often overlooked because it needs a great deal of research I have seen fluorescein sometimes bring out opacities in the cornea before the binocular loupe. Uhthoff has recorded the microscopic findings in conical cornea with hyaline infiltration

Now, if it is so important that lid pressure should be eliminated, are we not warranted in doing a canthoplasty? We can always resort to stitching up the defect I have seen the pulsation That is exceptional Dr F Park Lewis showed me such a case. In my opinion it is rare When must we operate? That is the great thing for us to know

Dr. Hunter H Turner, Pittsburgh Drs Jackson and Risley have both mentioned features leading up to a certain element which in my experience has been of paramount importance in the production of this condition Skillern, who is recognized as an authority on diseases of the accessory nasal sinuses, says that infection of these cavities following the diseases mentioned by Dr Jackson is very common, much more so than is ordinarily believed, and that the primary infection is followed by a secondary infection of chronic character which persists indefinitely He claims that the resulting tissue hyperplasia constitutes a point of lessened resistance which is affected by constitutional toxemias, and that the local effect is manifested by a turgescence of the nasal tissues I wish to go on record before this section as stating that this nasal turgescence is always associated with a turgescence of the vessels of the retina and conjunctiva, with a tendency to increase in intra-ocular tension I have had quite a number of cases of conical cornea in the early stages under treatment for years, which have remained stationary, the principal treatment being directed to the controlling of the sinus condition by competent rhinologists, and care in the matter of diet This tendency to congestion and hypertension, in my experience, is present in every case of progressive change in the ocular dioptrics toward the myopic side.

Dr. L Webster Fox, Philadelphia I consider conical cornea one of the most mysterious of all eye diseases You who have read the classical work of Nottingham on conical cornea—a book of 200 pages—know that he has thoroughly covered the ground of operations devised and abandoned Many of these operations were autoplasty, or various cuts and incisions made in the cornea to try to reduce the nipple-shaped projection, if possible. All of these experiments have been carried out by me—varied incisions and sutures A suture through the cornea is not half as disastrous as it appears, for the cornea has great resisting forces You will remember the old Critchett operation for staphyloma—incision and suture—from which no deleterious results followed.

I am greatly interested in this operation of Dr Wiener's, but I have come back to the English method—the application by the cautery At present I have two patients in the hospital who have been operated on within the last ten days, and in both cases I used this method One operation may not be sufficient, in that case a second one may be carried out As I have said above, Morton's method and also that of Critchett have been my favorites In following the cautery method I have obtained a deep saucer depression, and the final act is to pierce the center so that the aqueous will escape, in this way I have obtained good results This mode of procedure makes a central scar After performing the operation as outlined, an iridectomy is the next step, and after all inflammation has been allayed, a tattooing of the scar A workable eye is thus obtained. Under the best conditions the chances are that one operation will not bring about the desired results I have repeated the operation three times in one case, and finally, from about $^{5}/_{200}$ vision, got $^{20}/_{70}$

Fario, an Italian surgeon, cut out a small portion of the cornea three different times, leaving a hole through which the aqueous humor gradually drained The first excision was practiced at the upper part of the cornea, the second at the lower, and the third at the upper and inner Each piece of the cornea removed was triangular in shape, the apex being near the scleral margin

Dr Wiener's method is worthy of our consideration, but I am afraid his difficult surgical technic will not take the place of the actual cautery However, I shall give it a trial

Dr Edgar S Thomson, New York I should like to say a word in connection with Dr Wiener's operation I have done six or seven conical cornea operations, excising the summit of the cone It seems to me the results were better than cauterization because of less scarring In one instance I did not excise a large piece of the cone, but the sutures pulled through on the third day They were deep There seemed to be an unusual amount of traction on the cornea I had difficulty in keeping the lips of the wound together The eye was finally practically lost. I do not know that that is a very common accident It seems to me Dr Wiener's operation would keep the lips of the wound in close apposition and guard against an accident of that sort.

Dr. Edward Jackson, Denver With reference to clouding of the cornea, I want to express my agreement with Dr Risley's observation that a certain clouding of the cornea may be checked temporarily, and is rather frequent at an early stage. We know that the worst cases ultimately show some permanent clouding, but this early clouding may be entirely recovered from I have not convinced myself that it is always located in, or confined to, the membrane of Descemet.

With reference to an anatomic peculiarity of the individual's cornea, I note that two of the cases I have given here were in brother and sister They are the only two cases that I can recall occurring in the same family, but as far as this instance would go, it might point to a family peculiarity of the cornea We certainly have myopia running in families to a striking extent, but it is quite unusual for conical cornea to affect more than one member of a family

As to the number of cases, my forty-eight cases have not been seen in twenty-one years, but in thirty-five years They include practically all the cases that I have had under observation for any length of time in private practice The cases are not very common, and one case may be seen by a number of men—is apt to be so—and under observation for long periods of time, so that they seem to have an importance which the actual numbers do not support.

The pulsation of the conical cornea seen with the ophthalmometer I have occasionally noted, and I had one patient who spontaneously called attention to the pulsation of his vision When the vision was about as well corrected as it could be, any active exertion gave him the pulsation of distinctness of vision He could count his pulse by the changes in the distinctness of vision

Infection of the nasal sinuses was not looked for in a good many of the earlier cases of the series It has been present in some My figures would not indicate how often I am sure it is a condition worth careful looking for

The lid pressure to which I called attention is not due to the deformity of the lids, or to the weight of the lids on the eyeball or from a narrow palpebral fissure It is the pressure of a voluntary effort to change the refraction by lid pressure The girl with myopia who could bring her vision right up did not do it by movements of the lids, but by placing the finger on the lower lids and making traction In the case of the man, he made similar pressure on the cornea, but by a peculiar grimace, the lid was tensely drawn The illustration was not as striking as his movements when first seen As soon as he had put on glasses the pressure on the cornea stopped The pressure then made his vision worse and he stopped it That is the object of giving glasses, so that they will see best without additional pressure on the eyeball

Dr Meyer Wiener, St Louis I believe illumination is very important. I use ordinary north window daylight and no modifications, but I still retain good accommodation There is no question about the difficulty of handling the sutures They are complex and are apt to get twisted. That is merely a detail which can be overcome by care and patience These plates do not cause any irritation They lie flat against the cornea and the lids can bat over them after the bandage has been removed In the animals on which I experimented, there was never anything put over the eye. I had no infection that I can recollect in any of the animals, and there were two or three dozen The operation developed first by using a loop suture before the plates were used The loop suture pulled through after a few days, never lasting long enough for the wound to heal, so that the plates were suggested

I think emptying the anterior chamber purposely by a small puncture near the periphery is good It gives a chance for the wound to heal and with, eventually, a better result The advantage over cauterization is that if the operation is successful it leaves only a linear scar which can only be noticed by careful examination I believe the operation should be performed only in extreme cases when all other palliative measures have been tried and have failed

I have used also in a couple of cases of mild form epinephrin 1 to 1,000, as advised by Pontius, and seemingly the cases were improved greatly by its use

I should like to see Dr Fox, of all men, perform this operation I think men who have highly developed technical skill—and I have never seen one with greater skill—should perform this operation He is the type of man who can perform it and get a successful result.

PULMONARY EDEMA IN PNEUMONIA AND ITS TREATMENT *

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Edema of the lungs becomes a clinical condition when there is such an accumulation of tissue fluid in the tissue spaces that it transudes into the alveoli Thus the patient's lung tends to fill with fluid to the exclusion of air, and actually approximates the condition in drowning The edema appears first in the lower lobes and the middle lobe, and not till the late stages does it extend to any great degree to the upper lobes

The first distinctive signs are dyspnea and large liquid râles over the lower lobes In severe degrees of edema the breathing is that of suffocation, there is cyanosis, and there exudes or is expectorated from the mouth a thin serous frothy fluid often tinged with blood This fluid contains protein, and is recorded as amounting to as much as 2 liters (J L Brown[1])

Edema of the lungs may present itself in many pathologic states In pneumonia it may appear either as a slight local area of edema surrounding the inflamed portion of lung, and of no clinical importance, or it may occur with considerable rapidity of onset as a generalized edema such as that described This exposes the patient to a suffocative death, and calls for prompt measures if it is to be relieved Fortunately it not infrequently proves amenable to therapeutic measures

Edema is the result of a failure of the removal factors to keep pace with the production of tissue fluid, owing either to increased production or to diminished power of removal or to both For its production, edema fluid has but one source, the blood, from which it transudes through the walls of the pulmonary capillaries For its removal there are three pathways,

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* Read before the Section on Pharmacology and Therapeutics at the Sixty Eighth Annual Session of the American Medical Association, New York June 1917

[1] Brown, J L Virginia Med Semi Month, September, 1915

namely, the capillaries, which empty into the pulmonary veins, the lymphatics, which empty into the systemic venous system, and in the severe cases the bronchial tubes, which carry it to the mouth to be exuded That the capillaries carry away by far the greater part of the tissue fluid has been firmly established by Starling,[2] and we must accept Starling's dictum that "while capillary blood pressure determines transudation, the osmotic pressure of the proteins of the blood determines absorption" For it is obvious that while tissue fluid may transude from the capillaries owing to the filtration pressure in the blood stream, there cannot be a tissue-fluid pressure sufficient to make filtration back into the capillaries Hence the surplus fluid must return to the capillaries by osmosis, and this happens because after the transudation of the diffusible substances by filtration through the capillary walls, the capillary blood is concentrated and its osmotic pressure is greatly increased, so that it can again take up diffusible fluid It is not known whether or not the proteins as well as the salts in the fluid can be reabsorbed

The factors favoring increased production of tissue fluid are

1 *Increased Intracapillary Pressure*—Filtration from the capillaries is dependent largely on the pressure in the capillaries, and the extent to which filtration may be changed by raising the intracapillary pressure is shown by an experiment of Starling[2] in which raising the blood pressure by 50 mm of mercury for a few minutes was sufficient to cause an increase of loss by filtration of from 10 to 15 per cent of the blood volume Increased intracapillary pressure may result from heightened arterial pressure, dilatation of the arterioles, venous obstruction, or increased total volume of blood (plethora) It may rise so high as to break down the normal resistance of the capillary wall and permit a larger percentage of proteins than normal and even blood cells to pass through

2 *Increased Permeability of the Capillary Wall*—This may result from circulating poisons, local irritants, or lack of oxygen or nutritive material The last conditions are present in prolonged venous congestion With acetic ether administered intravenously, Miller and Mathews[3] obtained pulmonary edema whether there was a rise in pulmonary pressure or not Fischer[4] believes that "an edema results whenever the oxygen supply to the parenchyma of the lung is sufficiently interfered with" Welch[5] has stated that a larger proportion of the cases of pulmonary edema than is generally supposed is due to inflammatory changes in the vascular walls

3 *Hydremia*—This condition, which is an excess of water in the blood, if accompanied by plethora, as after a large intravenous infusion of physiologic sodium chlorid solution, may be a factor in the increased production of tissue fluid

The factors favoring diminished removal of tissue fluid are

1 *Lymph stagnation*, due either to decreased motion of the lungs or to obstruction of the lymphatic trunks As the lymphatics empty into the superior vena cava, congestion in the systemic venous system practically stops all lymph flow

2 *Diminished capillary absorption*, owing either to venous obstruction, to a watery condition of the blood, or to transudations rich in protein and consequently with a high osmotic pressure Such a transudate may be present in edema of the lungs In one paroxysmal case Martin[6] found 6 302 per cent of protein in the edema fluid

3 *Increased molecular concentration of the tissues*, so that they have increased osmotic pressure, and therefore take up more fluid than normally or hold the fluid more firmly

Between the production and removal factors there is great flexibility of accommodation, and it is probably not till more than one of the abnormal factors is present that edema ensues Mackenzie[7] has declared that "edema of the lungs invariably accompanies dilatation of the right heart," and this is a frequent statement in textbooks But aside from Mackenzie the best authorities on heart conditions agree that failure of the right ventricle will not make edema of the lungs, in fact, the best circulatory condition to favor the production of pulmonary edema would be failure of the left ventricle with continued activity of the right, or as stated by Welch[8] in 1878, there should be a disproportion in the work of the left ventricle as compared with that of the right It is to be remembered, however, that in pneumonia the right and left ventricles usually fail together, as, for example, when auricular fibrillation supervenes The consequent venous obstruction of itself produces the necessary combination of factors, for it results in increased capillary transudation, in increased permeability of the capillary wall owing to malnutrition and lack of oxygen, in diminished capillary absorption, and in lymphatic stagnation (the lymph either stops flowing or passes into the superior vena cava and thus immediately returns to the pulmonary capillaries) A part of the oxygen and nutritive supply to the lungs also comes from the bronchial arteries, which fail in their supply when the left ventricle breaks down Bolton,[9] working with Starling, has shown that stagnation of blood alone without either plethora or raised capillary pressure may suffice to produce edema

Manifestly, therefore, the most important cause of pulmonary edema is failure of the heart Contributory causes would be any of the other causes of dyspnea, and of these the first in importance would be depression of the respiratory center But not to be forgotten also among the causes of dyspnea are acidosis, severe pleurisy, and the direct and reflex effects of pressure below the diaphragm from tympanites or acute dilatation of the stomach Further possible contributory causes may be the presence of an inflamed area in the lung tissue, and a general invasion of the lung by bacteria

Among the important factors favoring the movement of blood through the lungs are adequate respiratory movements (Mackenzie[7]) These may be interfered with because of a depressed respiratory center, or because of the mechanical limitation of the excursion of the ribs or diaphragm owing to an extensive pleurisy or to upward pressure against the diaphragm by abdominal distention Further, as pointed out by

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[2] Starling E. H The Fluids of the Body W T Keener & Co, 1909

[3] Miller and Mathews A Study of the Mechanical Factors in Experimental Acute Pulmonary Edema Arch. Int. Med. October 1909 p 356

[4] Fischer, M H. Edema and Nephritis New York, John Wiley & Sons 1915

[5] Welch quoted by Hare in Osler and McCrae Modern Medicine Philadelphia Lea & Febiger 1914 **2**

[6] Martin quoted by Hewlett, H. M Intercolonial Med. Jour Australasia 1903 **8**, 611

[7] Mackenzie, J Diseases of the Heart, Oxford Medical Publications, 1913 Symptoms and their Interpretation Shaw & Sons 1909

[8] Welch Virchows Arch f path Anat 1878 **72**, 375

[9] Bolton and Starling Heart, 1909 1910 **1**, 292

Hirschfelder,[10] when the edema is once established, the lung is distended so that its tissues are under compression, and its elasticity is lowered so that it gives a respiration resembling that of emphysema

That acidosis is a cause of edema has not been established, but von Jaksch[11] reported the finding of acetone in the expired air in some cases of edema of the lungs, and Norris[12] mentions the frequency of acetone in the pneumonia urine Furthermore, Lewis[13] pointed out the prevalence of acidosis in lobar pneumonia, and held acidosis as largely responsible for the pneumonia dyspnea, and later Lewis and Barcroft[14] reported severe acidosis in three lobar pneumonia patients, two of whom died

That bacterial invasion is a cause is suggested by the statement of Welch that in irregular and localized edema (not pneumonic) and in extensive and even general edemas, he obtained colonies of bacteria from the lungs, mostly streptococci and lanceolate micrococci, in such numbers that they must have been in active growth in the lungs

That anaphylaxis is a possible cause of pulmonary edema was established by Rosenau and Anderson,[15] but any anaphylactic reaction in the pulmonary edema of pneumonia has not been demonstrated

TREATMENT

Our therapeutic aim must be to lessen the production and increase the removal of the fluid Both objects are to be accomplished primarily by improvement in the pulmonary circulation, and secondarily by attention to the contributory factors In all cases, therefore, cardiac failure is to be treated In addition, further therapeutic consideration may be required for respiratory insufficiency, acidosis, deficient oxidation, and abdominal distention

Cardiac Failure —This may come on suddenly with a change of rhythm, such as with the onset of auricular fibrillation or auricular flutter, or it may come on more gradually with simple acute dilatation Its treatment is by a member of the *digitalis* series In auricular fibrillation or auricular flutter an intravenous injection of strophanthin or ouabain, 0 5 mg ($\frac{1}{130}$ grain), acts usually in an hour or less If no effect is apparent, it may be repeated two hours after the first dose In simple dilatation it works more slowly and less certainly If digitalis has already been given, as is frequently the case in pneumonia, the beginning intravenous dose of strophanthin should not exceed 0 3 mg ($\frac{1}{200}$ grain), for in patients already under the influence of digitalis, a single milligram of strophanthin intravenously has caused death I do not include camphor, strychnin and caffein in this section, as I do not consider them circulatory stimulants

Nitroglycerin has many advocates on the theory that it relieves the left ventricle by opening up the systemic arterioles But failure of the left ventricle in pneumonia is not due to high tension in the systemic arteries, and therefore a result is obtained that is not wanted Furthermore, nitroglycerin tends to open up the pulmonary arterioles and so let more blood into the pulmonary capillaries to produce more edema fluid Stengel[16] says that, in his experience in acute paroxysmal pulmonary edema, nitroglycerin and the nitrites generally failed entirely, while Miller and Mathews[3] in nitric oxid edema of the lungs found that it did not dilate the pulmonary arteries and only had the undesirable effect of a marked fall in carotid pressure On the other hand, however, Ward[17] of Albany, declares that it must be used in large doses, from $\frac{1}{20}$ to $\frac{1}{10}$ grain every minute for thirty minutes, and that it relieves the dyspnea even before it causes flushing of the face—a statement which I do not quite comprehend, for flushing comes almost instantly, and if the dyspnea is so quickly relieved why continue the remedy for thirty minutes?

Venesection is considered one of the most reliable procedures in the pulmonary edema of pneumonia It has the effect of lessening systemic venous congestion and the plethora which exists in a stagnant circulation Bolton and Starling[9] consider that it serves to relieve the distention at the venous end of the heart, and so enables the heart to beat more effectively In conditions of circulatory stagnation they found that in all phases of respiration there is probably slight positive pressure in the big veins near the heart instead of the normal alternating positive and negative pressure, and that this was a definite obstruction to the emptying of lymph into the venous system Lazarus-Barlow[18] has noted that after bleeding, the specific gravity of the tissues rose, that is, tissue fluid had been lost Burton-Opitz[19] has shown that venesection regularly lowers the viscosity of the blood, and Starling[2] has pointed out that by venesection not only is diffusible fluid removed from the plasma but also proteins in large quantity, and that the blood volume is quickly restored by absorption of isotonic tissue fluid, so that it becomes more watery Lawrence[20] believes that repeated bloodletting, when indicated, does not have any ill effects on the composition of the blood, and Hamburger[21] demonstrated that the freezing point of the blood remains unaltered It is to be noted that in pneumonia we are not dealing with high arterial pressures, as in uremia

Miller and Mathews,[3] in their experimental edema of the lungs, found that before any effect could be seen on the pressure in the pulmonary artery it was necessary to withdraw a sufficient amount of blood to lower the general blood pressure to a dangerous degree The pressure in the pulmonary artery, however, is not the criterion of the value of any procedure in pulmonary edema, as this pressure is dependent on the relation of the right ventricular output to the caliber of the pulmonary arterioles These, though weak in muscle, are the gates which regulate capillary inflow, and may be looked on as protectors of the capillaries

Rolla[22] calls attention to the lessening of the alkalinity of the blood following venesection, and advises that when there is a tendency to acidosis it be accompanied by the administration of alkali

Respiratory Insufficiency —To stimulate the respiratory center, the three drugs most considered are atropin, caffein and strychnin Further treatment for respiratory insufficiency might be oxygen inhalation, artificial respiration, the removal of mechanical impediments to breathing, and counterirritation

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[10] Hirschfelder, A D Diseases of the Heart and Aorta, Philadelphia, J B Lippincott Company, 1910, p 147, Proc Internat Cong Med, 1913

[11] Von Jaksch See Norris, Note 12

[12] Norris, in Osler and McCrae Modern Medicine, Philadelphia, Lea & Febiger, **2**, 948

[13] Lewis, T Lectures on the Heart, Paul B Hoeber, 1915

[14] Lewis, T, and Barcroft, J Quart Jour Med, *1915*, **8**, *30*

[15] Rosenau, M J, and Anderson, J F Sudden Death Following the Injection of Horse Serum, Bull 20, Hygienic Lab, U S P H S

[16] Stengel, A Am Jour Med Sc, 1911 **141**

[17] Ward, S B Albany Med Ann, November, 1909

[18] *Lazarus Barlow Jour Physiol*, 1894, **18**, 1895, **19** 1896, **20**

[19] Burton Opitz R Quart Jour Exper Physiol, 1905

[20] Lawrence Boston Med and Surg Jour, February, 1916

[21] Hamburger *Osmotischer Druck und Ionenlehre*, Wiesbaden 1904, **2**, 30

[22] Rolla, C Riforma Med, Naples, 1914, **30**, 28

(*a*) *Atropin* In therapeutic amounts, atropin has but little power to stimulate the respiration in man It does, however, tend to dilate the bronchi, and this may in some cases prove useful There is a remote possibility also that by abolishing vagus action it may have the same effect as cutting the vagus nerves, which Porter and Newburgh[23] have shown to result in a normal respiratory rate in pneumonia in dogs They believed that this prevented the exhaustion of the respiratory center We hardly think this a possible 'effect of atropin in human pneumonia Atropin has the great disadvantage that through vagus action it abolishes any action of digitalis or strophanthin on the auriculoventricular conduction tissues, and completely neutralizes the effect of digitalis or strophanthin in steadying the work of the left ventricle Furthermore, as Miller and Mathews[7] report, in the experimental production of edema of the lungs by the intravenous administration of acetic ether or iodids, the developing edema was not checked by atropin, nor was the life of the animal prolonged And in experimental epinephrin edema of the lungs in rabbits, Stengel[16] found that atropin actually increased the rapidity of onset and the degree of edema It does not act, as asserted by some, to "dry up the secretion," for the edema fluid is a transudate and not a secretion Atropin, therefore, would seem to give little promise of real value, and to have decided disadvantages But it is not to be feared, as stated by Talley,[24] because of its "marked vasomotor stimulant influence with consequent rise in blood pressure," for atropin as used therapeutically does not have such an action

(*b*) *Caffein* In the doses available in man caffein is distinctly stimulating to the respiratory center I have several times seen edema of the lungs in pneumonia supervene on a respiration greatly slowed by morphin given for pleuritic pain, and I have seen these edemas and others not due to morphin yield quickly to hypodermics of caffein and sodium benzoate That the diuretic value of caffein may add to its advantages is a bare possibility, though it is probable that diuresis, unlike in other edemas, aids but little if any in influencing edema of the lungs in pneumonia That therapeutic doses of caffein do not act by stimulating the circulation is now well established A possible disadvantage, as mentioned in my book on pharmacology,[25] and later by Barton,[26] is a slight effect in counteracting the action of digitalis on the heart in auricular flutter or fibrillation, but this action on auriculoventricular conduction is slight as compared with that of atropin Caffein is only an emergency drug, and should not be employed as a routine in pneumonia, as it interferes with sleep

(*c*) *Strychnin* This is too weak a respiratory stimulant for therapeutic use, but it may enhance the value of other measures by inducing a general increase of reflex activity If the reflexes are already overactive, strychnin is contraindicated

(*d*) *The Inhalation of Oxygen* This is employed in the full belief that it increases the oxygen carried in the blood That it does so is probable but not altogether proved Loevenhart[27] laid stress on the fact that even when the supply of oxygen is ample, decreased oxidation in the body may occur, Kraus[28] showed that in cardiac failure the amount of oxygen taken up by the blood and of carbon dioxid given off is practically unchanged, and Zuntz and Schumberg[29] report that when they caused polypnea by carbon dioxid, and thus greatly increased the total oxygen taken into the lungs, there was no alteration in the amount of oxygen taken up by the blood

Yet Benedict and Higgins,[30] at the Carnegie Nutrition Laboratory, found that oxygen inhalation lowered the pulse rate, though it induced no change in metabolism, and no change in the character, depth or frequency of respiration And Parkinson, in reporting a similar lowering of the pulse rate, attributed it to the improved work of a better oxygenated heart muscle Starling found that with the normal tension of oxygen in the alveolar air of man, the hemoglobin and plasma carried about 15 6 volumes per cent, while after the breathing of pure oxygen for a short time, the percentage rose to 19 9 volumes per cent Hill and Flack[31] noted that after hard exercise of men not in good training, as in boxing bouts, it not only hastened their recuperation by abolishing the hurried shallow breathing, but had a value in preventing the usual stiffness of the muscles which results from unwonted exercise It would seem then, that oxygen inhalation does result in a systemic effect, however the effect is brought about

In cases of cyanosis, Starling calls attention to the fact that the high carbon dioxid tension of the blood lessens the degree to which the oxygen tension may be raised G N Stewart noted that oxygen inhalation increased the blood flow in the hands in a case of recurring cyanosis due to the depressed respiration of emphysema and chronic bronchitis, and Bence found that, in cases of cyanosis, oxygen resulted in decreased viscosity of the blood

The net results of these researches give us the impression that while oxygen inhalation has little effect in normal persons, it may have decided value in those cases in which the oxygen tension of the blood is already low And this is the case in pulmonary edema in pneumonia

Add to this the probable benefit of a direct supply of more oxygenated air to the lung tissues and the impaired capillary endothelium, and the good effect of increased oxygenation on acidosis, and it would seem that the inhalation of oxygen is a good therapeutic measure

(*e*) *Artificial Respiration* Adequate respiratory movements are important in the propulsion of blood through the lungs, inspiration normally enlarging the capacity of the pulmonary capillaries and veins But in pulmonary edema the lungs are more or less in the same condition as in emphysema, and their excursion is diminished Therefore, compression of the chest in expiration to take the place of the lost lung elasticity, and expansion in inspiration tend to overcome stagnation in the pulmonary blood stream Following the suggestion made by Haven Emerson,[32] after he found that he could abolish experimental edema of the lungs in animals by artificial respiration, using positive pressure through the trachea, Barringer[33] employed full artificial respiration with success in a pulmonary edema not pneumonic It was thought that positive pressure could not be used in human beings, and it is a question whether even ordinary artificial respiration could be instituted in a pneumonia patient But Kulenkamp[34] confined his efforts to compression of the thorax in expiration, and reports good results Mackenzie[7] suggests removing all restraint by placing the patient in the position to breathe most freely and by making him inspire deeply I would suggest that possibly a mechanical apparatus might be employed, though I have no knowledge of any such (Since this was written Dr S J Meltzer has brought forward such an apparatus)

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[23] Porter and Newburgh Am Jour Physiol December, 1916

[24] Talley in Musser and Kelly Practical Treatment Philadelphia, W B Saunders Company 1914 p 199

[25] *Bastedo* W A. *Materia Medica Pharmacology* and Therapeutics, Philadelphia W B Saunders Company 1913

[26] Barton William Am Jour Med Sc 1915 p 150

[27] Loevenhart A S Harvey Lectures, Philadelphia J B Lippincott Company 1914 1915

[28] Kraus quoted by Hirschfelder (Note 10)

[29] Zuntz and Schumberg quoted by Hirschfelder (Note 10)

[30] Benedict and Higgins Am Jour Phys 1911 **28**

[31] Hill and Flack Recent Advances in Physiology and *Biochemistry* Edward Arnold 1908

[32] Emerson Haven Artificial Respiration in the Treatment of Edema of the Lungs Arch Int. Med May 1909, p 368

[33] Barringer T B Pulmonary Edema Treated by Artificial Respiration Arch Int. Med May 1909 p 372

(*f*) *The Relief of Abdominal Pressure* This may be accompanied by a hypodermic of pituitary extract followed if necessary by other methods for treating tympanites or acute dilatation of the stomach It is to be noted that in pneumonia gastric lavage is impossible or at least dangerous

(*g*) *The Removal of the Limitation of Breathing from Pleurisy* This requires that if the patient's side has been strapped, the strapping should be removed to allow freer motion

(*h*) *Counterirritation* This is generally obtained by mustard, dry cupping, hot fomentations or hot poultices As there is no direct anatomic connection of the lung tissues with the chest wall, any effect on the lungs must of necessity be through the nervous system That a relation through the nervous system does exist was demonstrated by Dana in 1887, and in 1903 Head[35] pointed out that tenderness of the superficial tissues might be a manifestation of inflammation or injury to one of the internal organs Mackenzie,[7] Hertz[36] and Sherrington[37] have demonstrated conclusively that irritation of the superficial tissues which are supplied by the cerebrospinal nervous system may affect underlying viscera and vice versa So far as the abdomen is concerned, there is some evidence to suggest that strong counterirritation results in constriction of the arterioles in the underlying viscera, and it is possible that such an effect takes place in the lungs At any rate, counterirritation is one of the measures regularly employed and valued in the edema of pneumonia I employ dry cupping In dry cupping, the mechanical edema of the tissues produced by suction can hardly be a factor beyond the counterirritant effect That is to say, the popular belief that fluid is sucked out of the lungs by the cups is a fallacy

(*i*) *Lowering of the Head-End of the Body* This procedure, to facilitate removal of the fluid from the lungs, has been practiced with benefit in edema of the lungs from pilocarpin and anesthetics It is possible that some change in posture might favor the emptying of the lungs in pneumonia

Acidosis—In diabetes, when acidosis is serious, the specific remedies are great quantities of alkali, such as sodium bicarbonate, and great quantities of water administered by every available route But in pulmonary edema much water is contraindicated, and isotonic solutions of sodium bicarbonate should not be given either by rectum or intravenously, for the fluid thus introduced has a tendency greatly to increase the capillary transudation in the lungs Sodium bicarbonate should, however, be given by mouth, or, if this is not feasible, it may be introduced intravenously in hypertonic 10 per cent solution in amounts of 400 c c I have had experience with this and have found the hypertonic solution absolutely well borne As mentioned before, oxygen inhalation probably tends to lessen acidosis, and venesection tends to increase it

Morphin has proved almost specific in acute paroxysmal edema of the lungs, as described by Stengel,[16] probably because, as suggested also by Billings,[38] "in many of these patients an element of shock and mental disturbance contributes to the severity of the symptoms " But in the complicated edema of pneumonia it is dangerously depressing to the respiration, checks expectoration and favors the development of tympanites

SUMMARY

In the treatment of pulmonary edema in pneumonia, the most reliable procedures are strophanthin intravenously, caffein subcutaneously, oxygen inhalation, venesection, and perhaps counterirritation to the chest Supplementary treatment should be determined by the presence of acidosis or other associated conditions

57 West Fifty-Eighth Street.

ABSTRACT OF DISCUSSION

Dr Samuel J Meltzer, New York In discussing Welch's theory of pulmonary edema Dr Bastedo referred to its presentation in my lectures on edema and made a statement which I wish to correct Inflammatory processes of the lung do not play a role in this theory The essential point of it is the assumption that in pulmonary edema there is a disproportion between the activities of the two ventricles, that of the right being more effective The difference need not be large

I was pleased that Dr Bastedo did not mention epinephrin as a possible therapeutic agent Several years ago its use was advised by some of our consultants About fifteen years ago I discovered that epinephrin is often an effective agent to produce pulmonary edema—but not to cure it The Transactions of the Association of American Physicians several years ago contained an illuminating discussion of that subject

Dr Bastedo did not mention artificial respiration as a therapeutic means When Dr Emerson suggested it several years ago I had then some doubts about its usefulness I think now more favorably of it, it ought to be given a trial, especially when one is in possession of a reliable apparatus

Dr Jacob Diner, New York Dr Bastedo pointed out three important factors in edema Dr Bastedo also mentioned the inefficacy of cupping, and I hoped he would say something about the cataplasmata for the purpose of drawing out the fluid If we use this for its hygroscopic effect we can convince ourselves of its uselessness It is only the glycerin in the cataplasm which is hygroscopic and that to a very limited extent. This can readily be demonstrated by exposing glycerin in a moist atmosphere We are going contrary to the very mechanism (in physiology) which would aid circulation and we are increasing the intoxication We are pressing on a chest which is already laboring hard, by putting 250 gm of mud or kaolin on it With the lowest average rate of respiration and expansion we have a load equaling 7,500 gm raised 5 cm per minute, and this by a chest already laboring hard We are compressing the circulation, mechanically obstructing the venous return and adding to the pulmonary edema, and in addition calling on the heart for additional, unnecessary work Too much cannot be said against this manner of medication

Dr Walter J Wilson, Jr, Detroit I should like to emphasize the value of caffein A number of years ago its use was followed in a short time by such results that a patient who seemed to be moribund made a good recovery and is now in good health This was in a case of bronchopneumonia Other similar cases have strengthened my faith in it under such conditions as described in the paper Atropin, while it depresses the vagus endings does not alter the effect of digitalis on the heart muscle directly and is not contraindicated unless other conditions such as auricular fibrillation are present

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[34] Kulenkamp Deutsch med Wchnschr, 1909, 25, No 32

[35] Head, H, Brain, 1893, 16, 1894, 17

[36] Hertz, A. F The Sensibility of the Alimentary Canal, Henry Frowde, 1911

[37] Sherrington, C S Schäfer's Text Book of Physiology, 1900, 2

[38] Billings, quoted by Stengel (Note 16)

Dr Edward F Wells, Chicago The presence of the form of pulmonary edema which we usually have in mind in pneumonia is not of frequent occurrence but it is a contingency in any case and for that reason preparation should be made for its possible appearance at the very beginning of treatment It will not come on early and there is no harm in having things ready Digitalis—I believe I voice the profession—is a useful remedy in pneumonia, and personally I begin early and continue it throughout the course of the disease not in very frequent doses but in amounts producing apparent effect Strychnin is begun a little later and is given regularly for the special purpose of stimulating the reflexes the respiratory in particular Have ready a cylinder of oxygen, which may be of use and certainly can do no harm to the patient but I do not advise its constant use, have it ready in case of emergency Full instructions are given to the nurse as to what should be done in the actual appearance which is usually sudden of pulmonary edema These directions consist first in giving at once 1/16 or 1/4 grain of morphin hypodermically I place but little dependence on atropin but a small amount may be given, say 1/150 to 1/200 grain, but morphin is the most important remedy in this case. So far as I have seen the results of treatment depend on the promptness with which these measures are taken on the appearance of the edema The second important advice is that immediately on the advent of edema the mouth and nostrils shall be made the lowest portion of an inclined plane The whole body should be raised to such degree as will allow any excess fluid in the respiratory tract to escape by the mouth and nostrils The amount escaping in this manner is sometimes very great A stimulating enema of glycerin, Epsom salts and water is of secondary importance.

Dr. Walter A. Bastedo New York My paper included a paragraph on morphin and also a paragraph on mechanical means for evacuating the fluid I said morphin had proved successful in paroxysmal edema, but in the complicated edema of pneumonia I believe it should not be employed, as it is dangerous to the respiration, checks expectoration and favors tympanites I have known edema to be produced by morphin in pneumonia. Like Dr Wells I use digitalis early in pneumonia and this same practice has been adopted at the Rockefeller Institute

Dr Wilson's question about atropin versus digitalis is a big one to discuss Undoubtedly often cardiac failure in pneumonia is the result of the onset of auricular fibrillation or auricular flutter The impulses going from the auricle to the ventricle cause the ventricle to beat in a disorderly and inefficient manner In these cases we deal with a disturbance of rhythm, and our desire in the use of digitalis is to prevent the passage of the smaller impulses from the auricle to the ventricle, that is, we desire a degree of heart block so that the ventricle can go on beating efficiently without regard to the erratic beating of the auricle. This is the effect of digitalis in these cases, and it is annulled by atropin The stimulation of the muscle of the heart has not been proved to be an effect of digitalis that can be elicited satisfactorily in therapeutics, and as a rule the effect on the rhythm is evidently greater than the strengthening effect on the muscle. Furthermore, stimulation of the muscle often has the effect of causing great excitability of some part of the muscle, so that we get extrasystoles without increasing the work of the ventricle I think, therefore, it is of great importance in pneumonia not to check by the administration of atropin, any possible value of digitalis on the auriculoventricular bundle of His In regard to Dr Meltzer's remarks I think that Dr Welch answered well the arguments against his theory I am glad that Dr Meltzer referred to the subject. A disproportion between the right and left ventricles is not an easy thing to determine, and if the heart failure is due to a change in rhythm, as it frequently is in pneumonia, both ventricles fail together The epinephrin question I did not bring up because Dr Meltzer many years ago established the idea that it was dangerous in any condition that might lead to edema of the lungs As he mentioned, too the edema of the lungs from epinephrin occurs usually when you do not want it

VERTIGO AS A SYMPTOM OF PRIMARY DISEASE OF THE LABYRINTH *

GEORGE E SHAMBAUGH, M D
CHICAGO

The symptom of vertigo was for the first time associated with disease of the internal ear by Meniere in 1861 Previous to that year, vertigo was considered to be a symptom distinctly of intracranial disease Meniere published a series of articles on the occurrence of disease of the internal ear presenting symptoms resembling cerebral apoplexy Eleven cases in all were reported, in which in the absence of any previous ear trouble the patient was suddenly seized with vertigo, associated with tinnitus and deafness One of his patients died from an unknown cause five days after the attack of vertigo The macroscopic postmortem examination disclosed a grumous mass filling the semicircular canals No lesion was detected in the brain or spinal cord On the basis of these findings, together with the facts regarding disturbance of equilibrium brought out by the experiments which Flourens had previously carried out on the semicircular canals of pigeons, Meniere concluded that the symptoms observed in his patients were the result of hemorrhage into the labyrinth

Following these publications by Meniere, a great many cases have been reported presenting the characteristic symptoms of sudden onset of vertigo with tinnitus and deafness Many of these were described as cases of Meniere's disease, and it was assumed that hemorrhage into the labyrinth was responsible for the labyrinth disturbance The symptoms have appeared quite variant in different cases In some, a single attack, with sudden onset, threw the patient violently to the ground and produced severe tinnitus with total permanent loss of hearing In others, there was a long series of attacks, varying widely in severity In most of these cases each attack registered a distinct progress in an increasing labyrinth deafness In some, the disturbance of equilibrium, as well as the tinnitus and the deafness, was slight and appeared quite transitory In still others, the vertigo occurred quite independent of tinnitus or deafness It became apparent quite early that one cause was not responsible for the symptoms in all of these cases In some, the symptoms were the result of disturbance in the labyrinth caused by an extension of middle ear infection In other cases the symptoms were the result of demonstrable intracranial disease Of those cases in which the disease was primarily in the labyrinth, not infrequently the manner of onset, as well as the transitory character of the disturbance, precluded the possibility that an actual hemorrhage into the labyrinth had given rise to the symptoms

An effort has been made by some writers to restrict the use of the term "Meniere's disease" to those cases of primary involvement of the labyrinth in which the

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suddenness of the onset, together with the marked permanent loss in the hearing, seemed to make the diagnosis of an actual hemorrhage into the labyrinth the probable cause. The gradual transition between those cases in which hemorrhage into the labyrinth seemed to account most readily for the symptoms and those in which, from the transitory character of the symptoms, the possibility of an actual hemorrhage was excluded, made it quite impossible to separate a distinct group of cases and assert that these alone were the result of hemorrhage into the labyrinth, and that all the other cases of primary disease of the labyrinth presenting symptoms of attacks of vertigo with tinnitus and disturbed hearing were not caused by hemorrhage.

For these reasons many writers have given up the use of the term "Ménière's disease" for any of these cases, even for those in which it seems certain that a hemorrhage into the labyrinth has given rise to this syndrome, as, for example, when these symptoms occur in cases of pernicious anemia. The term "Ménière syndrome" has, however, come into general use to designate attacks of vertigo when associated with tinnitus and deafness, irrespective of the cause, whether it be from disease of the labyrinth secondary to middle ear infection or to meningitis, or to disease occurring primarily in the labyrinth, or whether it is occasioned by intracranial disease causing disturbance of the central tract of the eighth nerve. This term is an appropriate one by which to designate a characteristic group of symptoms, especially since it serves to perpetuate in otologic literature the name of the physician whose contribution represented a distinct epoch in otology.

Vertigo is now recognized to be as distinctly an aural symptom as is tinnitus, and when present indicates a disturbance of the vestibular nerve, either in its peripheral distribution in the semicircular canals or in its central pathways in the brain. In this paper I shall discuss only those cases of primary disease of the labyrinth producing vertigo.

PHYSIOLOGY

In order to interpret intelligently the symptoms of vertigo arising from disease of the labyrinth, it is important to keep clearly in mind a few fundamental facts in the physiology of the internal ear. The mechanism in the labyrinth for preserving the body equilibrium, the vestibular apparatus, accomplishes this end largely through the medium of tonus impulses to the skeletal muscles, which keep these muscles in a state of constant stimulation. The tonus impulses from the two labyrinths stimulate for the most part opposing groups of muscles, and since the impulses from both sides are equal, a state of equilibrium is preserved. A sudden alteration in the tonus from one labyrinth disturbs this equilibrium and gives rise to vertigo. The disturbance of equilibrium arising from a sudden disturbance of tonus is always temporary because a compensatory tonus rapidly develops to restore the equilibrium. A gradual destruction of function in one or both labyrinths may proceed even to the point of complete loss of function without ever giving rise to sensations of vertigo.

Keeping these fundamental facts in mind, let us inquire into the various processes which are known to involve the labyrinth primarily and produce the symptom of vertigo. In the first place there can be no doubt that a hemorrhage into the labyrinth will produce the characteristic Ménière syndrome. Hemorrhage into the labyrinth is, however, in all probability a very rare occurrence, whereas vertigo from primary disease of the labyrinth is by no means uncommon. It is indeed doubtful whether the symptoms in any of the cases reported by Menière were the result of hemorrhage into the labyrinth. Regarding the one case which came to postmortem, there are good reasons for believing that this case was one of epidemic meningitis with extension into the labyrinth. The view that the labyrinth symptoms resulting from large doses of quinin are caused by a congestion or actual hemorrhage into the labyrinth is now given up. In the same way, the Ménière syndrome, which so frequently develops in cases of chronic progressive nerve deafness, is in all probability not often, if ever, the result of hemorrhage in the labyrinth, as was previously supposed. The conditions which are known to produce hemorrhage into the labyrinth include especially such diseases as pernicious anemia, leukemia and purpura hemorrhagica.

Embolism of the labyrinthine artery occurs especially in caisson workers, as the result of gas emboli, and produces in its most characteristic form the apoplectic type of the Menière syndrome. I have seen a single case in which a blood embolism lodging in the artery of the labyrinth appeared to be the probable cause of a sudden attack of the Ménière syndrome, with a total permanent loss of hearing. The accident occurred during the puerperium, about one week after confinement.

Vertigo is not an infrequent symptom of advanced otosclerosis, in which its occurrence heralds the extension of the spongifying process involving the bony capsule of the labyrinth to the semicircular canals.

Syphilis, both during the secondary and the tertiary stages, often invades the labyrinth, giving rise to attacks of vertigo. Involvement of the labyrinth in hereditary syphilis is also quite frequently observed. In these cases, attacks of vertigo are not at all uncommon, and when present indicate a fresh extension of the disease. Very often in cases of syphilitic degeneration in the labyrinth, in which the involvement of the vestibular mechanism can be demonstrated by means of the turning tests, as well as by caloric stimulation, the process does not cause vertigo. This absence of vertigo is sometimes observed in cases in which, judging from the progress of the deafness, the degeneration appears to be extending quite rapidly. In explanation of the absence of vertigo, it is believed that the loss of function has proceeded so evenly as to allow the development of compensatory tonus to keep pace with the loss of labyrinth tonus. It is only a sudden progress in the degenerative process that enables the disturbance of tonus to give rise to vertigo. This vertigo will take place when the progress of the disease has been comparatively slight, provided only that it develops suddenly.

Neuritis of the eighth nerve is a not infrequent cause of vertigo. This neuritis may be the result of poisoning from drugs, such as quinin, tobacco or alcohol. More often the neuritis is caused by toxins from infectious fevers, such as measles, scarlet fever, diphtheria, influenza, mumps, typhoid and florid tuberculosis. As a rule, the involvement of the vestibular nerve causing attacks of vertigo takes place simultaneously with a degeneration of the cochlear nerves, producing tinnitus and deafness. In some cases the vestibular nerve alone is involved. Here tinnitus and deafness are absent, and only the attacks of vertigo indicate the involvement in the internal ear

By far the most frequent occurrence of vertigo is in association with a chronic degenerative process developing quite independent of syphilis or of the infectious fevers and involving, as a rule, the peripheral neurons of both the cochlear and the vestibular nerves When the cochlear nerve is involved, the characteristic symptoms are a continuous high pitched tinnitus and a more or less extensive defect in hearing at the upper end of the tone scale In some cases the vestibular nerve alone is involved The involvement of the vestibular nerve is not infrequently associated with attacks of vertigo Such attacks are always an indication of a sudden increase in the degenerative process and are associated with an increase in the tinnitus and the deafness when the cochlear nerve is also involved in the process It is possible by means of the rotation tests and the caloric stimulation to demonstrate the loss of function taking place in the semicircular canals in these cases It has been for these cases of primary disease of the labyrinth of unknown origin, presenting the characteristic attacks of the Meniere syndrome, that some would have us preserve the term "Meniere's disease," the assumption being that the distinct attacks are each the result of hemorrhage into the labyrinth

The characteristic course which these cases take, the chronic progressive nature of the degeneration going on in the labyrinth, the acute exacerbations, often occurring quite suddenly, and resulting in attacks of vertigo associated, as a rule, with tinnitus and deafness, all resemble so closely the course of neuritis in other nerves when caused by chronic foci of infection, that it seems entirely probable that focal infection may be the underlying cause for not a few of these cases of progressive degenerative processes involving the eighth nerve

The sudden exacerbation producing the characteristic Meniere syndrome can be accounted for exactly as are the exacerbations in any peripheral neuritis of focal origin, as the result of a fresh shower of bacterial emboli liberated from the primary focus and which, for some as yet not entirely accounted for predilection, select the peripheral neurons of the eighth nerve as their target The varying degree of the severity of the attacks, ranging from a total, even permanent, destruction of function to the slight temporary disturbance sometimes observed, finds here a ready explanation, which was not the condition when we assumed that the severe cases of the Meniere syndrome occurring in primary disease of the internal ear were the result of hemorrhage into the labyrinth, and the milder cases were the result of an angioneurosis The fact that the degenerative process in the labyrinth may progress without acute exacerbation and therefore without attacks of vertigo is quite in harmony with the chronic neuritis of other nerves

An additional evidence that focal infection takes a part in the production of neuritis of the eighth nerve is found in those cases in which the Meniere syndrome is observed in patients suffering from acute articular rheumatism In the literature there are a number of such cases reported as rheumatism of the internal ear We now regard acute articular rheumatism as a systemic infection from some primary focus, which very often is located in the faucial tonsil The occurrence of acute exacerbations is one of the characteristic symptoms developing in cases of acute rheumatism

SUMMARY

1 Primary disease of the labyrinth produces attacks of vertigo whenever the vestibular apparatus is involved by an acute process

2 Hemorrhage into the labyrinth is much less common than was formerly supposed

3 An embolus lodging in the labyrinthine artery occurs especially in caisson workers, as the result of gas emboli, and gives rise to the characteristic Meniere syndrome

4 Syphilis in the secondary and tertiary stages, as well as in hereditary syphilis, not infrequently involves the internal ear and gives rise to vertigo

5 Neuritis of the eighth nerve from overdoses of drugs, such as quinin, tobacco and alcohol, may produce neuritis of the eighth nerve with the Meniere syndrome

6 Toxic neuritis of the eighth nerve as the result of infectious fevers frequently gives rise to attacks of vertigo

7 The most frequent occurrence of vertigo is in connection with a primary chronic degenerative process involving the peripheral neurons of the eighth nerve and occurring independent of syphilis or the infectious fevers

8 The probable cause for many of these cases is to be found in a neuritis of the eighth nerve, as the result of some chronic focus of infection, such as is so frequently seen in chronic disease of the faucial tonsil

9 Attacks of vertigo occurring in connection with acute articular rheumatism are the result of neuritis of the eighth nerve and a symptom of the systemic infection from some primary focus

122 South Michigan Avenue

AURAL VERTIGO OCCURRING IN SUPPURATIVE DISEASE OF THE MIDDLE EAR*

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I think the majority of experienced otologists will confirm my statement that severe vertigo resulting from middle ear suppuration without labyrinthine involvement is not sufficiently common to call for prolonged discussion here At least, the distinguishing features of the vertigo in such cases may be more profitably analyzed in connection with special case reports The following conditions, however, require passing mention

1 A few cases of chronic middle ear suppuration have been observed or reported in which granulations in the region of the oval window and pressing on the stapes have caused vertigo which has been relieved by careful removal of the granulations I recall one such case which I saw with Dr Harmon Smith in which operation later was successfully performed by the late Dr Sheppard of Brooklyn The diagnosis of this condition would, in most cases, be tentative prior to operation It could be determined with some degree of certainty only on (*a*) the presence of the granulations, (*b*) retention of fair hearing power, (*c*) normal reactions to the tests of vestibular irritation, and (*d*) absence of response to the fistula test Such cases

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probably do not occur in the proportion of from 1 to every 5,000 cases of chronic middle ear suppuration

2 Vertigo depending on a defect, either congenital or resulting from disease, in the labyrinthine capsule, the membranous labyrinth remaining intact, is a somewhat rare condition Such a patient was sent by Dr F Risden from an outside clinic to the Manhattan Eye and Ear Hospital for examination and discussion The salient features were a perforated drum membrane with moderate discharge, frequent typical attacks of vestibular vertigo, fairly good hearing, and a pronounced reaction to the fistula test

3 Aural vertigo in middle ear suppuration depending on a so-called paralabyrinthitis—a congestion extending through the labyrinthine capsule to the membranous labyrinth—is usually easily distinguishable from the vertigo of diffuse suppurative labyrinthitis The diagnosis and treatment cannot be discussed here

4 Aural vertigo due to serous labyrinthitis need not be described, since it differs in no way from that due to suppurative labyrinthitis to be described later Serous labyrinthitis, though probably a pathologic entity, is not in the acute or active stage easily distinguishable from suppurative labyrinthitis The practical therapeutic deductions from this hypothetic lesion are nearly covered in the statement that a vertigo of distinctly vestibular type, accompanying a middle ear suppuration, and not coupled with complete unilateral loss of hearing should be treated as far as possible expectantly, that is, bone surgery, unless otherwise imperatively indicated, should be avoided or at least postponed until all symptoms suggestive of vestibular irritation have subsided

The vertigo associated with all of the foregoing conditions is invariably and distinctly of vestibular type I know of no distinct type of vertigo characteristic of suppurative disease confined to the tympanum So invariable and constant are certain vestibular elements in every case of vertigo accompanying tympanic suppuration that the occurrence in such a lesion of a vertigo of different type would in itself go far to prove an extra-aural origin If one speaks, therefore, of the vertigo of middle ear suppuration, one must inevitably refer to the familiar vestibular type

PHYSIOLOGIC BASIS OF SUPPURATIVE LABYRINTHITIS

Two clinical types of vertigo occur in suppurative labyrinthitis (1) the vertigo of the onset or acute stage, and (2) the vertigo of the latent or quiescent stage But in whatever phase or degree of severity it may be observed or whatever stage of the lesion it may represent, the physiologic basis is always the same diminution or loss of vestibular irritability in the diseased ear

It has been stated, probably on theoretical grounds rather than exact clinical observation, that the actual onset of a labyrinthine infection is announced by a symptom depending on vestibular irritation, that is, nystagmus toward the diseased ear, this initial irritation being quickly replaced by loss or diminution of vestibular irritability, and nystagmus toward the sound ear Practically, this exceedingly transitory stage of initial irritation is never seen by the aurist in diffuse suppurative labyrinthitis The vertigo of the acute stage cannot, therefore, be ascribed to vestibular irritability, but rather to disturbance of vestibular balance, the sudden loss of vestibular irritability in the diseased ear being in effect equivalent to stimulation of the opposite, sound vestibular mechanism

DIAGNOSIS

The Vertigo of the Acute Stage—This symptom is accompanied by the following invariably associated phenomena spontaneous vestibular nystagmus, subjective sensation of the rotation of surrounding objects in the plane of the nystagmus, and tendency of the patient, if standing, to fall or move in the plane of the nystagmus and in the direction opposite to that of the quick eye movement The patient's vertigo is increased when he turns his eyes in the direction of the quick nystagmus movement, and is lessened when he looks in the opposite direction These three concomitant symptoms of the onset constitute the characteristic syndrome of the acute stage of the disease

Course—It is impossible to dissociate these phenomena or to discuss one without the other In uncomplicated cases of suppurative labyrinthitis, the vertigo, the nystagmus and the ataxia tend simultaneously and quite rapidly to subside, so that within a week or ten days following the onset, they may have completely disappeared When the nystagmus has wholly disappeared, so also has the characteristic vertigo After the nystagmus has completely subsided, the patient may complain of vague, indefinite sensations of dizziness This subjective disturbance, which is not rotary in character, may be due to weakness, circulatory disturbance or gastric upset resulting from the attack, but such vertigo cannot be conclusively traced to the labyrinth

The Vertigo of the Latent Stage—This phenomenon is neither constant nor invariably prominent or noticeable It refers to the liability of the patient, after all characteristic symptoms of the acute stage have disappeared, to a sudden, violent and usually quite unexpected disturbance of equilibrium during which, unless forwarned, he may meet serious injury Such attacks, if they occur, are usually brief and are always induced by some body position or physical effort to which the patient has not become reeducated or reaccustomed, as on first going up or down stairs, sudden looking upward toward the sky, sudden turning while crossing a street in response to a noise, diving, or standing on some narrow support at an unaccustomed height (as on scaffolding) The danger of these attacks varies with individuals, and becomes progressively and rapidly more remote as the patient becomes reeducated in the various body postures and muscular actions, by which they may be induced Until this process of reeducation is complete, however, it is clear that this form of vertigo may constitute a menace to the patient's life

Surgical Significance of Vertigo in Labyrinthine Infection—The surgical significance of the vertigo of the acute stage is that of a recent infection of a minute bone cavity the anatomic pathways from which to the meninges have not yet been closed or guarded by the deposition of inflammatory products The surgical significance of the latent stage is of a focus of infection in a small bony space presumably walled off by inflammatory exudates, but still subject to further breaking down with consequent spread of infection to the meninges

GENERAL THERAPY

A logical general plan of treatment deducible from the foregoing and applicable to a majority of all cases of diffuse suppurative labyrinthitis not already complicated by intracranial infection might be formulated somewhat as follows: during the vertigo of the acute stage, absolute rest in bed, local treatment reduced to a minimum, and avoidance or postponement of all bone surgery not otherwise imperatively indicated. In the quiescent or latent, stage, a radical operation, combined with careful surgical drainage of the labyrinth, is the only treatment in accordance with sound surgical law and which safeguards the patient's future.

There is one other class of cases—rare, but of undoubted occurrence—which must be briefly mentioned. In the course of a chronic middle ear suppuration, the patient develops characteristic vestibular vertigo with associated phenomena. The symptoms gradually subside leaving the ear absolutely deaf or hearing profoundly reduced; caloric reactions are absent. After a period, which varies in length, of complete freedom from vertigo, there is a second attack closely resembling the first, from which the patient again recovers. Thereafter he may be subject to recurrent attacks which render life miserable either by reason of their severity or by the sense of insecurity or of impending disaster during the interperiods of relief. Barany mentioned to me cases of this sort coming under his observation. Such a clinical picture might be explained by the hypothesis of a very slowly progressive bone necrosis of some part of the bony capsule so situated as to produce more or less walling off of some portion of the labyrinth prior to the first characteristic vertiginous attack. Such a patient carries with him constantly the possibility of serious intracranial involvement with each successive attack. This condition would, in my opinion, be a most positive indication for the labyrinthine operation.

Vertigo in any suppurative lesion of the ear is always a symptom to be treated seriously. If due to a suppurative process confined to the tympanum or mastoid, and exerting an influence only indirectly on the labyrinth, the aurist's best judgment is required as to how, and particularly when, to deal surgically with a lesion which in recurrence may include the labyrinth. If the vertigo is clearly a result of labyrinthine infection, the need of sound surgical judgment is even greater.

In considering questions of treatment, we shall do well to bear in mind one fact which I have not seen stated in the literature of the subject, and which, from their writings and clinical reports, many writers have seemed wholly to ignore, namely, patients do not die of suppurative labyrinthitis per se. Those patients who die on account of this lesion invariably do so as the result of a secondary intracranial infection: meningitis, cerebellar abscess, or sigmoid sinus thrombosis. Operative technic is most important; it is not, however, the sole desideratum in dealing with the infected labyrinth. An operation, logical enough in intent, may carry overbalancing risks of causing that which it seeks to avert, that is, a spread of infection toward the meninges. There is also in suppurative labyrinthitis, more perhaps than in any other surgical disease, a period of greatest operative safety as also of operative risk.

There is no absolutely safe method of treatment, no rule of action which in the varying aspects of the disease may be relied on to save all its victims. In each individual case, surgical treatment must take account of the following several points: (*a*) immediate chances of recovery, that is, with and without operation; (*b*) possible influence of any operation in causing a spread of infection; (*c*) stage of the disease in which operative intervention is safest, and (*d*) ultimate risk to life if the labyrinthine focus of infection is not surgically eliminated.

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VERTIGO DUE TO INTRACRANIAL DISEASE *

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PHILADELPHIA

There is no symptom more difficult to define on the part of the patient than vertigo, because this term is used to describe the slightest giddiness, falling sensation, epileptic aura or fainting spell.

Vertigo has been described as a feeling of discomfort arising from a disturbance of the relations of the body to space or a feeling of loss of balance. One of the best descriptions is by Hughlings Jackson, who described vertigo as a sensation of motor origin the result of a discord between the impressions which come from the labyrinth, the cerebellum, eye muscles and from other sources with which they coordinate or act in harmony. As the result of the discord of these impressions, consciousness is affected with a distressing sensation known as vertigo. Jackson rightly emphasized that this sensation is perceived through the cerebral hemispheres.

It would be important if it were possible to differentiate organic from functional vertigo from the clinical description furnished by the patient. To some extent this can be done, and yet mistakes are common. I knew of a patient suffering with vertigo who, for many years, was shown before medical students as a case of hysteria in the various medical institutions of Philadelphia, but who died from a cerebellopontile tumor growing from the eighth nerve, while, on the other hand, functional vertigo is frequently diagnosed as organic.

VERTIGO IN INTRACRANIAL TUMORS

Tumors of the cerebral hemisphere do not produce dizziness unless there is considerable increase of intracranial pressure. Therefore vertigo appearing in cerebral tumors should at once arouse a suspicion of great increase of intracranial pressure, or of disease of the posterior cranial fossa.

Tumors or other lesions in the posterior cranial fossa nearly always cause vertigo either because of the direct involvement of the vestibular fibers or by indirect implication of these fibers through pressure. Slowly growing gliomatous lesions may directly involve the vestibular fibers without causing the slightest dizziness.

An attempt has been made by Grainger Stewart and Gordon Holmes to differentiate the forms of vertigo into, first, the sense of movement of self or surrounding objects, and second, an indefinite sensation, generally described as a giddy feeling. According to these authors, in intracerebellar tumors the external objects in front of the patient move from the side of the lesion to the opposite side, this being also true of the subjective rotation of self in intracerebellar lesion, but in in extracerebellar tumors the subjective rotation of self is from the healthy side toward the side of the lesion. These symptoms would be valuable in differentiation between intracerebellar and extracerebellar tumors, were they present in all cases, but in my experience this differentiation cannot be made, for in my own cases the sense of rotation of objects or self, while it has been present, has been always more or less indefinite

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In the second form of vertigo, described by Stewart and Holmes, the patient suddenly becomes dizzy, generally after some abrupt movement, the surroundings become dark, and there may be numbness or weakness in the extremities, associated with intense nausea and a tendency to fall backward or to the side of the lesion, consciousness may be impaired but never lost, objects may seem to swim or intermingle indiscriminately in front of the patient, and he may feel that if not supported he would fall in any direction, or collapse

It would seem as if these indefinite feelings of giddiness should have the greatest localizing value because they may be present only when the head or eyes are deviated in a certain direction Again, this indefinite sense of vertigo may be apparent only when the eyes alone are deviated toward the direction of the lesion

I have selected examples of lesions in different localities as illustrations of the type of vertigo occurring in different kinds of cases

TUMORS OF THE CEREBELLOPONTILE ANGLE

An analysis of operative cases and of the tumors in the posterior cranial fossa in my laboratory gave very interesting results

In a patient with a left cerebellopontile angle tumor growing from the eighth nerve involving the seventh nerve and the pons and cerebellum secondarily, the patient would not experience dizziness on looking to the right or on standing upright, but whenever he looked to the left suddenly he experienced a sense of dizziness and would feel as if objects were swimming on that particular side Turning his head slowly would produce no sensation In a case in which a tumor grew from the right middle cerebellar peduncle into the cerebellopontile angle involving the eighth nerve secondarily, the patient preferred to lie on the right side of his head, for when he sat up he felt dizzy When sitting he would always lean forward and to the right, feeling more comfortable in this position In another patient in whom a right cerebellopontile angle tumor invaded the pons and the cerebellum by pressure and in whom there was also involvement of the right fifth, seventh, eighth, ninth and tenth nerves, no vertigo whatever was present In this patient there was entire absence of choked disc and of increase of intracranial pressure

TUMORS OF THE CEREBELLUM

In a patient aged 6 years, in whom a cyst was accurately localized and removed for me by Dr George P Muller, the cyst being on the right superior lateral lobe of the cerebellum, while the asynergy was very marked, vertigo was entirely absent There was no increase of intracranial pressure

In another patient in whom a gliomatous tumor was removed from the right cerebellum by Dr Wayne Babcock, there were mild general pressure symptoms This patient had dizzy spells associated with nausea and vomiting He described the dizziness as a feeling as if everything were going from under him, and likened it to rolling down a hill and falling into a hole When in bed he would have to lie on his face and then turn his head because he felt as if everything were dropping from under him He would never put his head directly back in a barber chair, but first would have to turn on his side and then put his head back If he did not do this he had a sensation that things were going around He never felt as if he were going around the objects Later on the dizzy spells would come on only when he was stooping over In this patient, after a decompressive operation and removal of a certain amount of the brain tumor tissue, these symptoms promptly disappeared

In another patient in whom there was found a tumor in the vermis and the right inferior lateral lobe, the symptoms began with an attack of dizziness which lasted for a day Recurrent attacks would not last so long During these she felt as if she were turning around, the head down, the feet up These sensations were not constant, the intermissions lasting about a minute Accompanying these attacks there would be at times nausea and vomiting Gradually these attacks became less and less, and she felt dizzy only when turning her head to the right She described these attacks as a feeling of dizziness between her eyes and over her eyebrows or a swimming of the head She was free of these when on a level or turning her head in any direction excepting to the right When she did so the dizziness started synchronously with the movement, and was most marked when the head was turned extremely to the right and instantly ceased when the median line was reached

In another patient in whom postmortem examination revealed internal hydrocephalus of the fourth ventricle with pressure on the inferior vermis, the dizziness was described as a sensation as if the head were turning around from one side to the other Objects in front of him never moved

These descriptions of cases could be carried on indefinitely, but some conclusion can be reached from their study It is apparent that there is no focal or recognizing value in the clinical description of vertigo furnished by the patient It is also evident that vertigo or dizziness is present only in certain sets of conditions First, there must be increase of intracranial pressure in which the vestibular fibers are indirectly implicated Secondly, the lesion must involve the vestibular fibers directly and must be of such a character that the fibers are destroyed, for a slowly growing gliomatous tumor may not give any symptoms at all Finally, the conclusion may be reached that vertigo in itself is not a focal symptom Its presence or absence, however, helps in the diagnosis in the manner detailed above

FUNCTIONAL VERTIGO

It is generally known that certain organic cerebral conditions produce vertigo, the most frequent, of course, being arteriosclerosis Besides, chronic cerebral anemia or hyperanemia and the bodily changes occurring in the climacteric frequently produce dizziness It is hardly necessary to mention the fact that ocular palsies are frequently the source of vertigo In a patient with a cerebellopontile tumor growing from the eighth nerve, the dizziness was extreme There were also ocular palsies Correction of the latter entirely removed the vertigo

In my experience, however, dizziness is most commonly found in the nervous patient Oppenheim believes that any one can bring on a feeling of vertigo by concentrating his thoughts on the process of loss of balance and by calling up the recollections of giddiness, which are familiar to every one Neurasthenic individuals have this power in a still greater degree, and in them fear and thought of vertigo are quite sufficient to produce it In these patients, the nature of the vertigo can sometimes be told by the description of the patient, and of course also by exclusion For example, in a patient with the fear of the presence of a cerebellar tumor, there is a feeling of swaying from side to side only when he reaches for an object, such as an instrument, and yet in the performance of the muscular exertion were he to touch an intervening object only slightly with the finger tip this swaying would disappear He plays a very good game of golf and never has the slightest sensation when doing so, nor does he have this when he stands still The fact is that in this man the fear of falling obtrudes itself into his consciousness to such an extent that the sense of dizziness or the fear of it is always imminent Especially common is dizziness in the traumatic neuroses, when the head is injured In practically all these cases dizziness disappears with settlement of litigation, but it cannot be said that the description furnished is characteristic any more than that the description is such as to put you on your guard against the possibility of its being labyrinthine in origin

It should not be forgotten that neuroses often are associated with definite labyrinthine involvement, and in these cases the nature of the dizziness is exaggerated to an amazing degree I saw such a patient with Dr David Riesman a few months ago This patient, a woman, aged 49, became dizzy at the age of 35 The dizziness was described as a sort of indefinite feeling within the patient which was chiefly marked when looking to the left Ear examination by Dr George MacKenzie was not satisfactory because of the sensitiveness of the patient, yet did not denote anything of an organic nature For fourteen years this patient has tyrannized over her mother and two sisters, who have given up their entire time to attend to her She never moves her head without bracing herself in a certain way and having these three devoted relatives help her move She does not allow any one to walk in the room because she does not want to be jarred She sleeps upright Yet neurologic examination is entirely negative When told by various neurologists and ear men that she has nothing organically wrong she promptly abuses them and tells them that they do not know their business This probably is the most exaggerated case of this kind I have ever seen

EPILEPTIC VERTIGO

One of the most difficult differential diagnoses to make is between aural vertigo and the minor types of epilepsy, a distinction which is not recognized as frequently as it should be There may be only a feeling of turning or uncertainness or an actual rotation which is either partial or complete, or there may be a sudden fall Of course, aural vertigo can always be told from the minor epileptic type in the fact that in epilepsy there is nearly always a history of major spasms For many years since my attention has been called to it, I have never failed to obtain a history of minor spasms, especially the psychic type, in every patient with epilepsy This fact is not so generally recognized as it should be The confusion arises in the fact that minor epileptic attacks often are accompanied by tinnitus, and there might be only a slight giddiness with not a complete loss of sensation

Epilepsy and labyrinthine vertigo occasionally occur in the same patient. It must also be recognized that aural vertigo as well as epilepsy may occur during sleep The cause must be referred to the instability of the center for equilibration

VALUE OF THE BÁRANY TESTS IN INTRACRANIAL LOCALIZATION

In 1913, with other neurologists, I attended the International Medical Congress in London and was impressed with the excellent work of Barany and its value in cerebellar localization On my return I was fortunate enough to induce Dr Isaac H Jones to take up this work It is not necessary for me to point out the results achieved by Dr Jones and his co-workers Suffice it to say that there is no doubt in the minds of the neurologists fortunate enough to be associated with Dr Jones of the value of this work I myself am of the opinion that no neurologic examination of the posterior cranial fossa is ever complete unless advantage is taken of the data furnished by the Barany tests

I wish, however, to call attention to what I consider a rather dangerous deviation from the work as originally laid out My remarks are not uttered in a spirit of criticism, for, as I have tried to emphasize, I have too high an opinion of the merits of this work, but in the interest of scientific accuracy I feel it necessary for me to state my views, although they may be in antagonism to those expressed by some of the previous readers of papers on this subject

The fiber tracts leading from the labyrinth through the vestibular nerve into the Deiters group of nuclei and from there into the cerebellum, pons and cerebral cortex are by no means definitely known Neither is there accurate evidence that there is a so-called vestibular center in the temporal cortex While cerebellar localization has advanced in recent years, and incidentally the first localization chart in the human cerebellum was advanced by Dr Mills and myself, yet this scheme of ours is by no means definitely proved, and has necessarily not been generally accepted and will not be until we have furnished more pathologic data I make these statements because it is a mistake to assume that the fiber tracts are definite and that we know accurately their location It at once becomes apparent that it is not possible by means of the ear tests alone to localize a tumor in a definite portion of the pons, cerebellum or medulla, or any of the constituent anatomic structures in which the vestibular tracts are located It would be far better for the sake of scientific accuracy and for the future welfare of this work that whatever statements are made at the present time should be made in the most tentative manner, and not accepted until proved by accurate pathologic data Take, for example, the posterior longitudinal bundle, which is an important part of the vestibular system A great deal of work has been done, and yet many years of research have failed to tell us its component parts, and where this tract begins and ends, yet some of the workers in this field have assumed that these tracts contain certain vestibular fibers and that there is no doubt about their location

Years of neuropathologic work have proved to me that it is very difficult to establish fiber tracts in any part of the nervous system It has become necessary, therefore, to assume certain facts This is right and is scientifically proper, for unless we exercise some scientific judgment and imagination, no progress can be made It is right, therefore, to make assumptions from clinical evidence, but it must be understood that these are only tentative

1909 Chestnut Street.

VALUE OF BÁRÁNY TESTS IN THE DIAGNOSIS OF VERTIGO, FROM WHATEVER CAUSE*

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Although it has been generally recognized for many years that vertigo may result from ear disturbances, the conception that all vertigo, from whatsoever cause, is peculiarly an ear study is the outcome of recent studies by Bárány methods We have known that vertigo may be a symptom of disturbance in the ear, or within the brain, or may accompany refractive errors, or disorders involving gastro-intestinal, cardiovascular or renal systems We therefore, up to the present time have always classified vertigo according to its apparent etiology, calling it "gastric" vertigo, or renal vertigo or falling back in obscure cases on the old reliable diagnosis of "idiopathic" vertigo The very vagueness of such a classification shows that we have had no real conception of the actual mechanism that is responsible for dizziness However, if by a study of the vestibular apparatus we come to realize that it is this balance mechanism that keeps us from being dizzy we become convinced that vertigo is impossible unless there is an irritation, impairment or destruction of some portion of this "vestibular apparatus," by which we mean the internal ears and their intracranial pathways The ear tests enable the otologist to study the integrity of each and every part of this mechanism Therefore, dizziness need no longer be regarded as something vague and mysterious It becomes a distinct clinical entity and may be intelligently studied

To be sure, the ear-tests do not furnish absolute, final and complete information as to everything whatsoever that has to do with vertigo For example, by ear study we are not able to tell whether the source of a toxemia has been in the kidneys, or the gastro-intestinal tract, or in a focal infection These tests, however, open up a definite method of approach in this most obscure field, and furnish the possibility of accurate diagnosis and intelligent treatment Have we, in fact, any other method of attacking this problem except by the ear-tests? Surely any opinion based on history or analogy or empiricism is at best merely a conjecture

The tests themselves are best presented by the
moving pictures The first reel demonstrates the nor-
mal responses in normal persons [Moving pictures
were shown, presenting the American modification of
the Bárány chair, the technic of the turning and
caloric tests, showing the necessity of putting the head
in certain definite positions in order to stimulate cer-
'o definite semicircular canals, and the demonstra-
lateral ɩ normal responses, in nystagmus, past-pointing
very mar ing, after stimulation of the various semicir-
no increas als]
In anoth rve pathways from the ear to the eye-
removed fr d the nerve pathways from the ear to the
Babcock, th tex, with their branches and subdivisions,
This patient ir conception of the "vestibular appa-
and vomiting e vestibular portion of the internal ear
as if everything e *sense-organ* of this apparatus, we
likened it to rolling eak of the apparatus as the "ear
When in bed he wo the disturbance of this mechanism,
turn his head becau
dropping from under

and only the disturbance of this mechanism, that produces vertigo When this ear-mechanism functionates normally, perfect equilibration is the result If for any cause, immediate or remote, there occurs a disturbance in this mechanism, vertigo is the result

Dr Lewis Fisher and myself have attempted to classify under separate headings the various types of conditions that can produce vertigo We take this opportunity to submit the following classification

1 Involvement of the ear-mechanism by a lesion in the ear itself

2 Involvement of the ear-mechanism by a lesion involving the intracranial pathways from the ear

3 Involvement of the ear-mechanism by ocular disturbance, either through the eye-muscle nuclei, or through association fibers from the cuneus to the cortical terminus of the fibers from the ear, in the posterior portion of the first temporal convolutions

4 Involvement of the ear-mechanism by cardiovascular disturbance

5 Involvement of the ear-mechanism by toxemias from any organ or part of the body

So far as our present knowledge goes, this classification includes all the causes of vertigo

It is to be noted that regardless of the cause, vertigo is due to the involvement of the ear-mechanism Let us discuss the causes seriatim

1 Lesions in the ear itself have been completely presented by Dr Shambaugh and Dr Kerrison in this symposium They have shown that a lesion of the vestibular portion of the internal ear produces dizziness, staggering, nausea, vomiting and perhaps diarrhea, just as an affection of the cochlea produces noises in the head The general practitioner is familiar with the significance of tinnitus and recognizes that he is dealing with an ear condition When confronted, however, with vertigo, nausea and vomiting, it is questionable whether, at the present time, the physician is apt to suspect the ears as the possible cause of all these symptoms This, of course, is due to the newness of this study When we realize that we otologists have come to recognize the importance of the vestibular labyrinth only in the last decade, it is only natural that the physician has not had his attention sufficiently called to the phenomena of internal ear disturbance When a physician sees a case of vertigo, one of his first thoughts should be of the ear itself

2 Lesions within the brain, such as tumor, hemorrhage, thrombosis, infarct, abscess, gumma, tubercle, specific neuritis, multiple sclerosis, syringomyelia, poliencephalitis or meningitis, produce vertigo by affecting the intracranial pathways from the ear Dr Weisenburg has made this clear to us in his part of this symposium

The value of ear-examination in the differential diagnosis between lesions in the ear and lesions in the brain is best illustrated by citing two cases In one case the history and symptoms indicated a lesion of the ear, and yet it turned out to be an intracranial lesion In the other case the history and symptoms indicated an intracranial lesion, and yet it turned out to be a lesion in the ear

CASE 1—J B K., man, aged 39, in September, 1914, as he stepped off a train, was suddenly seized with violent vertigo, nausea and vomiting The vertigo was so severe that he fell to the platform and was taken to the hospital, where he was confined to bed for ten days, during which time the vertigo gradually diminished There was coincident complete deaf-

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on on Laryngology, Otology and Rhinology
ession of the American Medical Association,

ness in the right ear Here we have the typical classical picture of the so called 'Meniere's disease'—a sudden hemorrhage into the internal ear Yet it turned out to be a beginning tumor in the right cerebellopontile angle, from which the patient died in seven months

CASE 2—Mrs Agnes G, aged 44, in July, 1914, suddenly began to have difficulty in walking and in September had severe attacks of vertigo nausea and projectile vomiting The diagnosis of brain tumor was made, and neurologic consultants found that the symptoms and tests suggested that the tumor was in the right cerebellar hemisphere This diagnosis was confirmed by the Roentgen-ray report which stated that it was a cyst in the right cerebellar hemisphere The surgeon was about to operate but hesitated because the ear examination suggested that the lesion was in the right labyrinth and because the cerebellum appeared normal (The past-pointing after ear-stimulation was normal—both arms past-pointing properly both to the right and to the left) The patient had an uninterrupted convalescence without operation has given birth to a healthy child and has remained in excellent health ever since (a period of two and one-half years)

One thing cannot be too strongly emphasized—we otologists do not attempt to make a diagnosis of intracranial conditions When an ear-examination suggests that we are dealing with an intracranial condition we recognize that we are obviously beyond the field of otologic study, and immediately feel the need of a thorough examination by a neurologist to whom such a case properly belongs The ear-examination, like the eye-examination, simply furnishes information of value to the neurologist It is the neurologist who alone is fitted by his training to draw conclusions from all the data including the ear-examination

3 Ocular conditions producing vertigo are naturally best studied by the ophthalmologist If the ear-tests fail to show any impairment of the ears or their intracranial pathways, an eye examination is indicated Many cases of vertigo are cured by correction of ocular defects This happens so often in the experience of ophthalmologists that many seem to be convinced that the eye is the most important organ to study in cases of vertigo Surely, however, the eye is not the organ of balance If you destroy the eye the individual becomes blind, but he does not become dizzy On the other hand, we all know how destruction of the internal ear, or simply the slightest irritation of the internal ear, produces violent vertigo and disturbance of equilibrium

4 Cardiovascular irregularities may produce vertigo by causing ischemia or hyperemia of any part or parts of the ear-mechanism—either within the internal ear itself or its intracranial pathways, or in its associated centers in the cerebral cortex

5 Toxemias affecting the ear-mechanism may be grouped into two classes

(*a*) Evanescent toxemias which have produced no degeneration of the cellular elements within the internal ear or its intracranial pathways

(*b*) Toxemias which have produced a definite impairment of some portion of the ear or its pathways

The cases of evanescent toxemia constitute a very large proportion of the cases of vertigo that are seen by the physician The simplest illustration of this type of vertigo is the dizziness produced by the ingestion of alcohol The mere presence of alcohol in the stomach does not produce vertigo It is only when the alcohol reaches the ears and the brain that the person becomes dizzy

CASE 3—Mrs Van S, aged 32, had no symptoms ascribable to her ears, but was referred by Dr McGlinn because she complained of vertigo In October, 1913, she woke up one morning with a violent attack of vertigo, accompanied by nausea, vomiting, retching and diarrhea The attack suggested ptomain poisoning in every particular except that there was no pain in the abdomen These symptoms continued for forty hours, and then the patient improved progressively for the following four days On the fourth day she was out of bed and apparently had entirely recovered, but on bending over to kiss her boy she suddenly felt that she was plunging forward through a door This second attack lasted another day Gradual improvement followed, so that at the time of the ear examination, ten months later, she stated that she noticed vertigo only when she lay down at night In October, 1914 she woke up one morning with the sensation that the bed was falling over This attack like the others, gradually diminished in severity after a few days Between attacks she merely noticed that when she went to bed at night it took about half an hour to go to sleep, because she felt a little dizzy, and she could not sew or read because it made her dizzy

Examination of the ears revealed normal cochleas, normal semicircular canals, and normal pathways from the ear throughout the brain The diagnosis suggested under these circumstances was that we were dealing with a purely functional neurosis, or with a mild toxic irritation of the internal ears On receiving this report, Dr McGlinn recognized that the probable source of this toxemia was a pyuria due to pyelitis and an associated cystitis Under the vigorous use of hexamethylenamin, the pyuria was markedly improved Dr McGlinn noted distinctly that when the pyuria was least marked there was practically no vertigo During the past year and a half the patient has been practically free from either the pyuria or the vertigo In the past few days, however, the pyuria has returned, and with it the vertigo

Toxemias which produce a definite impairment of the internal ears include the powerful toxins, such as in mumps or syphilis, and also the repeated assaults of a milder toxin, such as those from the gastro-intestinal tract or from a focal infection

CASE 4—Mrs W, aged 58 had her first attack of vertigo in 1897 It lasted only a few minutes She had three or four such attacks during the next fourteen years A severe attack in 1911 occurred while she was walking along the street These attacks came on at irregular intervals In October, 1915, a severe attack occurred while she was sitting in the theater, and she was taken to the hospital, where she remained for seven days Because of the attacks of nausea, vomiting, diarrhea and emaciation, a diagnosis was made of gallbladder carcinoma Operation, however, showed the gallbladder to be negative. Subsequent ear examination made it perfectly plain that all her symptoms had been due to recurrent attacks of labyrinthitis Her physician, Dr Robert L Pitfield, has noted that when she eats fish or eggs she has a marked gastro-intestinal disturbance and that the vertigo accompanies this disturbance Under dietetic treatment she has recovered, and at the present time is in excellent health

CASE 5—Miss C. H, aged 27, was referred by Dr Francis Packard, who felt it advisable to remove the pathologic tonsils but hesitated to do so because the patient had complained of severe and continuous vertigo for a period of over six months This dizziness was almost continuously present. It made no difference whether she was lying down or standing Occasionally at night the vertigo would be so severe as to wake her from a sound sleep For the previous year or two the patient had noticed that when going up or down in an elevator she would almost faint Six months ago, however, the definite vertigo began, and there appeared at the same time an appearance of an eruption just under the skin.' She had always had exceptionally good health until this skin eruption and vertigo commenced. The report of the ear examination read "There is no evidence of any intracranial involvement along any of the pathways from the ear There is a proportionate impairment of nystagmus, vertigo and past-pointing indicating a slight impairment of function of the vestibular portion of the right labyrinth The diagnosis suggested is a toxemia which has affected the internal ears at intervals, thus producing the vertigo, the condition is in no sense serious If the toxemia can be eliminated, it is probable that she will have no more attacks of vertigo" Dr Packard removed the tonsils In a few days there was a complete disappearance of the vertigo, and the skin eruption also disappeared at the same time

Case 6—H H, man, aged 42, was referred by Dr Vincent Lyon with a history of an attack, nine months before, of acute articular rheumatism involving almost all the joints At the time, the patient was confined to the hospital for seventeen days, and after leaving the hospital continued to have occasional recurrences of the involvement of the joints Three months after the original attack, the patient began to complain of vertigo and staggering, and was referred for an examination of the ear in the attempt to discover the cause of the vertigo The ear report read "Examination shows a distinct impairment of both internal ears, in both the cochlear and vestibular portions This suggests that a source of toxemia must be searched for It may be that the same oxic substance that causes his joint involvement may also ave caused this toxic labyrinthitis" Roentgenoscopy revealed abscesses at the roots of two teeth These abscesses were drained by the removal of these two teeth Within a week the patient ceased to have any vertigo or staggering, and also all the rheumatic symptoms entirely disappeared That the removal of the focal infection at the roots of the teeth cured this patient entirely of all his symptoms makes it strongly suggestive that this focal infection was responsible for his entire illness The toxemia, on the one hand, had involved the joints, and, on the other hand, had involved the internal ears, thus producing the vertigo and staggering

These varied conditions that produce vertigo may be illustrated by the moving pictures [Moving pictures were now shown, consisting of cases of different types of involvement of the labyrinth, including fistula from chronic middle ear suppuration, syphilitic neuritis of the eighth nerve, lesions of medulla oblongata and pons, including tumors, poliencephalitis and multiple sclerosis, lesions of cerebellum, including cases in which tumor has been removed with recovery, and cerebellopontile angle tumors, with necropsies]

In conclusion, in any given case of vertigo the first thing to be done is to examine this ear-mechanism which is responsible for the vertigo One thing we know positively—the tests will show either abnormal or normal responses If the responses are abnormal, the tests will help to locate the point of the disturbance, either within the ear itself or along its pathways within the brain If the responses are normal, we have then narrowed down the diagnosis to (1) a purely functional neurosis, (2) ocular disturbance, or (3) an evanescent toxemia, the source of which must then be searched for

Therefore, just as we examine the urine in nephritis or diabetes, or as we have a Wassermann test made in cases of suspected syphilis, just so by the ear-tests we can analyze the apparatus responsible for dizziness Only rarely does a "dizzy case" remain obscure after these ear-tests, and in most instances the diagnosis becomes clear and simple

Medical Arts Building

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS SHAMBAUGH, KERRISON, WEISENBURG AND JONES

Dr. H T Patrick, Chicago I should like to ask Dr Jones whether he has performed the Barany tests on a man with alcoholic vertigo, drunk enough to stagger, and if so, what the results were

I venture mildly to take issue with Dr Shambaugh on the point that vertigo is due to a toxic or degenerative neuritis in the vestibular nerve Vertigo is essentially a paroxysmal affection If there be such a thing as continuous vertigo, compared to a continuous tinnitus, it may be due to neuritis, but that the vertigo which comes on suddenly, lasts a few seconds, a few minutes or a half hour, should be due to a neuritis is repugnant to my neurologic training Neuritis of a motor or a sensory nerve is a continuous condition—of irritation or the lack of conduction There is pain or lack of sensation The pain of a neuritis is a *continuous* pain, it is not a paroxysmal pain, not at all like tic douloureux, or facial neuralgia, which is essentially paroxysmal The focal infections, which are so frequent, rarely cause neuritis, they cause arthritis Most of the cases of such origin, supposed to be neuritis, notably brachial neuritis, sciatic neuritis, intercostal neuritis, are not neuritides at all, they are cases of arthritis of the shoulder, hip, and the joints of the spinal column The neuritis of infection or intoxication is generally a multiple neuritis, though occasionally it is local In either event the symptoms are not paroxysmal

I believe that Dr Weisenburg's caution is essentially apropos We must draw definite conclusions with great circumspection For instance, I recently held a postmortem on a young girl who had lost practically one half of her cerebellum with a cyst that had penetrated the pons beyond the middle line, so that the cyst on the right side caused a facial palsy on the left, and yet she never had a particle of vertigo The question of vertigo in the neuroses is one of great interest and practical importance The most important thing is that neuroses cause no vertigo There is a sensation of dizziness, but it is not vertigo at all In the neuroses there is apprehension and doubt, a feeling of great uncertainty, and definite phobias, constituting a kind of emotional vertigo The patient has a feeling that he is going to fall, that he is going to stagger, that he has to hold to a person or piece of furniture to keep from falling In fact, they do often hold on with a vigorous grip But they really have no vertigo These patients do not need investigation of the labyrinth They need investigation of the personality in its widest sense

Dr Wells P Eagleton, Newark, N J As otologists we must realize that the majority of patients with cerebellopontine angle involvement present themselves early in the disease because of ear symptoms, and frequently they have been treated for many months, and sometimes for years, for progressive deafness or for slight vertigo, before outstanding neurologic symptoms appear

As to brain abscess, I am persuaded that every case of suppurating ear that gives any cerebral symptoms whatever should have a thorough functional test, as light may thus be had during the early stages of a brain abscess Examination of the reported cases of brain abscess show that very few have been diagnosed early enough to give a proper chance of recovery, and this largely for the reason that in spite of suppuration of the middle ear, the functional tests that we now have have not been systematically and repeatedly followed while the patient was in condition intelligently to cooperate in their application

Regarding neuroses, a large number of people come to us complaining of a sensation of dizziness Sir Victor Horsley called attention to the frequency with which perversion of the sexual act causes a sensation of vertigo, in my experience this has been a common cause, and when a patient comes in complaining of a roaring in the head and vertigonous sensation, it has been my routine to question him regarding this, with the result, when present, that correction of this vice will promptly cure the vertigo

As regards increased intracranial pressure, the systematic application of the cold caloric furnishes the otologist with the means of its early diagnosis, which may be as important as the papilledema of the ophthalmologist In cerebellopontine angle tumors the increased intracranial pressure interferes, in a large proportion of cases, with the nystagmus and vertigo normally induced by the cold caloric of the unaffected side, when applied in the upright position the nystagmus is absent and no sensation of vertigo is elicited

The fixation apparatus to which Dr Jones referred is an instrument to be condemned With the fixation apparatus, even if directly in front of the patient, there must be some convergence, which inhibits more or less the normal reflex Furthermore in looking for evidence of nystagmus to the right with the apparatus in the side positions, as recommended by Barany the nystagmus is increased to the right when looking to the right, and diminished when looking to the left Purely vestibular nystagmus should be studied with the patient looking straight ahead and at some distant point I have done quite a little work with Alexander's modification of the von Stein goneometer motor, and had excellent results with it Dr Breen s modification has a support where the patient can put his heel In the tests that I made, the patient's feet were bared and a little rosin used to prevent slipping I was able by careful technic to obtain constant results in all positions

Dr Weisenburg pointed out that we may have vertigo without nystagmus which is true, so, too, may we find nystagmus without vertigo, furthermore, we may find nystagmus vertigo and past-pointing in a purely ocular condition — in those conditions in which there is a paresis of one of the extra-ocular eye muscles pointed out by Stewart long ago and quoted again by Panse in his monograph on Schwindel" So in cases of doubt or even in mild cases every possible source should be studied before coming to a positive conclusion that the nystagmus and vertigo are of vestibular origin Vertigo may occur, as pointed out by Dr Weisenburg, in cases of tumor in any part of the brain, provided there is sufficient pressure, especially if the pressure has been brought about within a reasonably short space of time Recently I had a case of the kind There was a large cyst in the frontal lobe The patient had no vertigo, but he did have an excessive degree of physiologic nystagmus, while the two sides reacted excessively promptly to galvanism Dr Weisenburg mentioned one case in which Dr Jones had given a patient considerable distress from testing and I have seen such cases One of the nicest and easiest things to do if one has a neurotic patient, is to try the galvanic test. That is not so distressing to the patient as turning since a normal reaction is obtained with three to five amperes, manifested by nystagmus without vertigo The patient is not made sick with it

Dr Lewis Fisher Philadelphia In analyzing the findings of an ear examination one is guided by the following 1 If stimulation of the labyrinth produces perfectly normal responses, both vertigo and nystagmus, there is evidently no impairment of the vestibular apparatus and the vertigo is produced by something irritating the apparatus 2 If stimulation of the labyrinth fails to elicit any responses whatever, the trouble is in the labyrinth or the eighth nerve, because that is the one place where one lesion would interfere with all of the reactions 3 If a patient shows nystagmus and no vertigo or vertigo and no nystagmus such a lesion is not labyrinthine An experience with many pathologic cases naturally teaches us to regard certain 'phenomena-complexes" as meaning a lesion of a certain type and we are impelled to suggest occasionally a diagnosis For instance, when ear findings show a nonreacting ear, with deafness on one side, with an absence of responses to stimulation of the vertical semicircular canals of the opposite side we immediately recognize that all the cerebello-pontile tumors we have examined give just such findings, whereupon we do not think that we are presuming too much when we suggest to the neurologist that he is perhaps dealing with just such a lesion To sum up, the otologist does not attempt to make a pathologic diagnosis, his function is to furnish information of which the neurologist may or may not avail himself as he pleases

Dr. E L Myers, St Louis I work in a dispensary where we have about fifty cases a day, and the case that I am about to report has some relation to the Barány test A boy had been sent in by the school physician for a disturbance in his vision This boy had a nystagmus which could be brought out by closing one eye and asking him to fix laterally The boy could see absolutely perfectly and had no nystagmus when he was looking straight ahead, but the moment he closed the left or right eye, he showed equal nystagmoid movements with the unclosed eye. He was examined by neurologists and serologists, etc., but they could not make a definite diagnosis as to the cause. Dr Max W Jacobs of St Louis says that this is one of a few such cases reported If Dr Jones will help me out by explaining it, I will be obliged to him

Dr. Norval H Pierce, Chicago What was the character of that nystagmus?

Dr E L Myers, St Louis It was what I would consider a true spontaneous nystagmus The motion would be one way at one time, but if the eye was turned to the other side, it would be the other way The boy said he was afraid to walk on joists, and that when he stood on a street coping he had a sense of dizziness

Dr. George F Keiper, Lafayette, Ind I wish to emphasize the point brought out by Dr Weisenburg with reference to the rotation test I formerly was enthusiastic about this test, and then I saw several patients who were made worse after it We ought not to make a rotation test with any person until we have given him a thorough physical examination, investigating all the details with reference to the organs, and then making an examination of the eyes The examination of the eyes is important I should like to ask Dr Jones whether the patient with the insensitive cornea had glaucoma Glaucoma sometimes produces vertigo

Dr. Isaac H Jones, Philadelphia It was a benign tumor

Dr Philip D Kerrison, New York I wish to ask Dr Weisenburg if in his opinion a tumor in the cerebellopontile angle would invariably cause vertigo, in other words, was the development of such a tumor with complete absence at all times of vertigo clinically possible?

Dr. A A Hayden, Chicago Dr MacKenty spoke of electrical tests There are three tests, the caloric, the turning and the electrical I understand the latter is the least pleasant and least reliable I should like to ask Dr Jones to elaborate on this in his closing remarks

Dr George E Shambaugh, Chicago I wish to emphasize the following points First the most frequent cause for vertigo is disturbances in the internal ear, and of these internal ear conditions the most common is a progressive degenerative process which can readily be demonstrated by our functional tests The second point is one which was brought out clearly in this symposium and in recent years is becoming more and more recognized by the specialists This is that the work in any special field requires close cooperation between the specialist and men working in other lines of medicine. In this particular field the neurologist is our companion, but in many of our cases the internist is the one from whom we get the greatest assistance I am convinced that we have already a very satisfactory basis for making a differential diagnosis between vertigo which is the result of disease processes in the internal ear, and vertigo which is caused by some intracranial disturbance.

I am glad to hear from Dr Patrick definitely why he finds it difficult to accept the conclusions expressed in my paper, that the chronic degenerative processes in the internal ear which cause so many cases of vertigo may be the result of changes due to chronic focal infection This objection expressed by Dr Patrick, as I gather it, is that neuritis as the result of focal infection is a process which runs a more or less chronic course, whereas, in these cases of vertigo the disturbance is almost always temporary Dr Patrick's difficulty lies in the fact that he has failed to grasp the significance of the symptom of vertigo Vertigo is always a temporary affair and even when it is the result of a sudden, complete destruction of the function of the internal ear, the vertigo lasts a very short time, at most a few weeks Vertigo is never caused by a slowly progressing process which is destroying the function of the internal ear Its presence always indicates a sudden acute exacerbation of this process Now, as a matter of fact, in the cases referred to in my paper there is going on in the labyrinth a chronic, progressive degenerative process which is not a temporary affair, but is exactly like the chronic degenerative neuritis such as involves the optic nerve in cases of focal infection The symptom of vertigo arises in these cases only when there happens to be an acute exacerbation, and then only when this acute process involves the vestibular part of the ear

Dr. Theodore H Weisenburg, Philadelphia In regard to Dr Kerrison's question, I have seen a number of instances of tumors of the cerebellopontile angle without vertigo, but in these cases the eighth nerve was not involved pathologically

Regarding Dr Fisher's comments, I only wish to emphasize that the future advances in this work will altogether depend on the coordination of those interested and the neurologists, because the latter are chiefly concerned with it It is necessary to go slowly in assuming that the anatomic data are indisputable, until that is definitely proved by pathologic work I am glad to say that such coordination is not only possible, but is actually going on in Philadelphia

Dr. Isaac H Jones, Philadelphia Dr Patrick has asked about the effect of alcohol on the internal ear Those enthusiasts in Vienna who started the studies of the labyrinth made it a point to test individuals who were intoxicated The turning and caloric tests produced *hyperactive* responses in nystagmus, past-pointing, vertigo and falling, and especially in nausea and vomiting Alcohol unquestionably produces a hyperactive condition within the labyrinth

In regard to the case of spontaneous nystagmus the etiology of which is obscure, it is possible that this case may be cleared up by means of the ear tests It is in just such obscure cases that the ear tests are of value

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ACUTE ASCENDING TOXIC (OR DEGENERATIVE) MYELITIS

REPORT OF A CASE WITH NECROPSY FINDINGS

JULIUS R GLOBUS, M D
NEW YORK

This is an extremely rare disease, and there are only a few cases on record In some cases the exact nature of the condition has probably been overlooked, and they have gone on record by the name of the similar and somewhat more common disease known as Landry's paralysis But the clinical picture, and to a certain degree also the histologic findings, in these two allied conditions are so different and distinct, that there should be no difficulty in classifying them as two entirely separate diseases

REPORT OF CASE

History—L W, a man, aged 31, white, born in the United States, a bricklayer, was admitted, May 3, 1917, to Dr C E S Webster's service. The patient was well developed physically and well nourished He had never been sick before, except for measles in early childhood The family history was negative He drank and smoked moderately There was no history of sexual excesses, exposure or trauma Syphilis and gonorrhea were denied On the night before admission, he came home slightly under the effects of alcohol, but apparently well otherwise When awakening next morning he found himself helpless to such a degree that he could not even change his position in bed Both upper and both lower extremities were found in a condition of complete flaccid paralysis, with the exception only of the fingers of the right hand, which he could move slightly, but which were also found paralyzed a few hours later He could, however, move his right shoulder until a few hours previous to his death In addition, all the muscles of the trunk were paralyzed, and breathing was purely diaphragmatic

Course—The neck showed slight rigidity, but the patient could move his head in all directions, although these movements were slightly painful, otherwise there was no pain anywhere The face was pale in the beginning and became flushed with the rise in temperature The pupils were moderately dilated, equal, and reacting to light and accommodation Nothing abnormal was found about the heart or lungs The liver and spleen were not palpable The bladder was very much distended, and on catheterization 73 ounces of urine were obtained The bowels were obstinately constipated All reflexes were gone

Sensation was completely lost in both lower extremities and trunk, and very markedly diminished in both upper extremities, it was only slightly diminished, if at all, in the lower part of the neck.

The patient's temperature on admission was 95 F The pulse was 60, and respiration 24 The patient was given strong hot coffee, a hot enema and plenty of external heat The temperature was going up gradually, and in seven hours reached 97 5 F Pulse was 100 and respiration 26 Four hours later the temperature was 100, pulse 120 and respiration from 26 to 30, and remained at this height until death

The patient was fully conscious, and his mind remained perfectly clear throughout the illness He was quite comfortable until the last hour, when he apparently began losing control over the muscles of articulation and deglutition

When he had been in the hospital for twenty-seven hours (and between thirty-six and forty-two hours after the onset of the disease) the patient became suddenly deeply cyanosed and died in a few minutes, from respiratory paralysis

The urine showed a faint trace of albumin, but otherwise was negative

The blood count revealed 12,000 white cells, 82 per cent. polymorphonuclears, and 18 per cent small lymphocytes

Lumbar puncture gave 35 c.c. of perfectly clear, colorless fluid under pressure, with sixty cells per cubic millimeter, negative globulin and positive sugar Smear and culture revealed no organisms The spinal fluid Wassermann test was negative

Necropsy—This revealed the medulla, cervical cord and upper dorsal very soft and spongy throughout, and the cord congested in the anterior portion There were no changes in the brain The spleen was somewhat enlarged and congested There were no changes in any of the other organs

Histologic examination revealed the general topography of the cord not altered The spinal meninges were normal, except for a slight dilatation of the blood vessels Round cell infiltration was absent.

The gray matter of the cord showed vacuolation of the anterior horn cells, which in certain areas had proceeded to fragmentation of the cell There was a generalized edema of the anterior horns, the edema extending to the posterior horns The blood vessels were markedly dilated, and not surrounded by round cell infiltration The changes outside the gray matter consisted of a general edema of the nerve fibers and supporting neuroglia, with absence of round cell infiltration

Sections of the medulla showed, as the only demonstrable histologic change, a generalized edema with absence of hemorrhage, round cell infiltration, or other evidence of inflammation

COMMENT

It is clear that this case belongs to the group of diseases which are often known under the general term of acute ascending paralysis, the other members of this group being Landry's paralysis and acute anterior poliomyelitis (especially the fulminant type) But it differs from the others clinically by the loss of sensation, there being either no change in sensation at all in the two others, or hyperesthesia, if any, and complete absence of pain, this element being present to a certain degree in Landry's paralysis — pain in the back and tingling and cramp like pain in the extremities — and still more marked in poliomyelitis

Pathologically, we meet here a condition of acute degeneration of the nerve elements and neuroglia with nearly complete absence of inflammatory changes, as adventitial and perivascular cell proliferation, which differentiates it from acute poliomyelitis, as well as from inflammatory or infiltrative myelitis, while true cases of Landry's paralysis present practically no changes either gross or microscopically, with the exception of slight edema and some general hyperemia of the cord

Lincoln Hospital and Home.

Special Article

MODE OF INFECTION, MEANS OF PREVENTION AND SPECIFIC TREATMENT OF EPIDEMIC MENINGITIS *

SIMON FLEXNER, M D
NEW YORK

SERUM TREATMENT

(*Concluded from page 725*)

Mode of Administering the Serum—In practice the first dose of the serum is injected without delaying until a positive culture result or even a positive microscopic film is obtained The clinical signs having aroused suspicion that the case may be one of epidemic meningitis, lumbar puncture is performed A fluid at all turbid is taken to be presumptive evidence of meningococcus infection A fluid quite clear arouses doubt But in the latter instance, immediate centrifugalization and microscopic examination of the sediment may show beginning leukocytosis, and the application of the Noguchi test[20] excess of globulin Those findings indicate an inflammatory process The latter test may be carried out while the lumbar puncture needle is in position, as may also the microscopic examination of a film stained by Gram's method in order to reveal gram-negative micrococci, presumably the meningococcus, within or outside the leukocytes

The disease having, through bacteriologic examination of the cerebrospinal fluid or nasopharynx, been shown within another twenty-four hours to be definitely or with a high degree of probability epidemic meningitis, the subsequent course of treatment will be determined by its severity and progress

The steps, therefore, are as follows Diagnostic lumbar puncture, the results of which arousing suspicion, is followed immediately by the injection of 30 c c of the antimeningococcic serum in adults and corresponding doses in children The cases having been proved by bacteriologic examination to be epidemic meningitis, two or three additional doses are administered at successive twenty-four hour intervals, irrespective of any favorable outlook, unless there arise definite indications to the contrary The purpose of the three or four successive doses is to guard against relapse when the symptoms seem to yield completely to the first injection or two of the serum The number of injections required by a case of average severity is from four to six

When the onset is more violent or the case has come under observation at a later stage, the procedure is the same, except that it may be advisable to repeat the injection at twelve hour intervals on the first day and even afterward The number of doses of serum required for this class of case averages from six to ten Not a few cases have terminated in recovery when very protracted, and instances are reported in which 1 liter or even more of the serum has been injected into the membranes in doses ranging from 30 to 60 c c before the infection finally yielded The prolonged course results from repeated relapses or reinfection of the meninges arising from some protected focus of multiplication of the meningococcus not freely reached by the serum This condition may be due to late or to inadequate treatment, but has been known to appear in spite of vigorous and even early beginning of the serum injections

In instances of which very few have been reported, the meningococcus induces a general blood infection without concomitant changes in the cerebrospinal fluid Intravenous injections of the serum in doses of from 40 to 60 c c are indicated and have been successfully employed

The maximum dose of the serum is not 30 c c In very severe or in protracted cases, quantities of 40 and even 60 c c may be administered The massive quantitives have been known to bring about an arrest of the infection in certain cases which were not responding well to the smaller doses It is, however, the exceptional case in which the larger doses are required

The administration of the serum should be continued until the temperature has fallen to and continues at normal for two or more days, but as in some cases the cerebrospinal fluid becomes clear of meningococcus and even of inflammatory cells and the obvious symptoms abate, although the temperature still keeps above normal, it is desirable to interrupt the injections of the serum and to observe closely the effects under the latter rather unusual circumstances If the serum is too abruptly discontinued without taking account of the general symptoms and local conditions, the probability of relapse is increased

Withdrawal of cerebrospinal fluid always precedes the injection of the serum, and it is advisable to remove a volume of the fluid greater than that of the serum injected Not infrequently from 50 to 60 c c of the fluid may be withdrawn Some physicians of experience prefer always to perform lumbar puncture in adults under general anesthesia Certain patients are very sensitive to the puncture and apprehensive of it, and the introduction of the serum is sometimes attended with severe pain in the buttocks radiating down into the legs Moreover, under the semi-asphyxial condition induced by the anesthetic, the pressure in the cerebrospinal fluid rises and a more voluminous outflow is obtained Quantities of the fluid of from 70 to 100 c c may thus be removed Younger persons and young children especially mind the puncture much less

And yet it is doubtful whether a general anesthetic should be resorted to except in special instances, in very sensitive patients a local anesthetic may be advisable.

The mere withdrawal of a quantity of cerebrospinal fluid with its contents of multiplying and degenerating meningococci may be in itself a benefit, however this may be, it is quite certain that a lumbar puncture performed during the recovery to relieve pressure often seems to speed up the convalescence

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* From the Laboratories of the Rockefeller Institute for Medical Research

* As the subject matter of this article is of timely importance the reprints have been prepared in advance of the publication in THE JOURNAL and can be had by sending a stamped self addressed envelope to this office or to the author

[20] Two parts of the cerebrospinal fluid to be examined are mixed with 5 parts of a 10 per cent. butyric acid solution on physiological salt solution and are heated over a flame and boiled for a brief period One part of a normal solution of NaOH is then added quickly to the heated mixture and the whole boiled once more for a few seconds The actual quantities of these three agents preferred are 0 1 or 0 2 c.c. of the spinal fluid 0 5 c c. of the butyric acid solution and 0 1 c.c. of the normal sodium hydroxid. It is necessary to take the precaution to employ for this test only cerebrospinal fluid entirely free from blood The presence of an increased content of protein in the cerebrospinal fluid is indicated by the appearance of a granular or floccular precipitate which gradually settles to the bottom of the tube beneath a clear supernatant fluid. The velocity and intensity of the reaction vary according to the quantity of the protein contained in a given specimen. The greater the amount of the protein the more quickly and distinctly the reaction appears. The granular precipitate appears within a few minutes in a specimen containing a considerable increase in protein while one hour may be required to obtain a distinct reaction in specimens weaker in protein In obtaining the reaction the time period should not be greater than two hours (Noguchi H Serum Diagnosis of Syphilis and Luetin Reaction Philadelphia and London 3d edition 1912 223)

The directions for administering the serum may be stated as follows

The lumbar puncture is performed under aseptic precautions in the third or fourth lumbar space The patient lies on the side with the back arched, thus giving the greatest possible distance between the spines of the vertebrae The notch nearest a line connecting the crests of the ilia is found, in the midline of which the needle is introduced and pushed forward and a little upward The distance to which the needle sinks depends on the muscular development and age of the patient it varies from ½ to 3 inches The cerebrospinal fluid is allowed to flow out until the pressure is so reduced that only three or four drops come per minute The serum is warmed to body temperature and introduced *very slowly* under the least possible pressure and *preferably* by the gravity method The barrel of a syringe or a funnel may be used The rubber tubing should be long enough to be raised from 12 to 15 inches, and its diameter should be from ⅛ to ¼ inch The quantity of serum injected should be less by from 5 to 10 c c than the volume of fluid withdrawn In cases in which no fluid can be removed (so-called dry tap) and the serum still appears to flow into the membranes, great care must be exercised and the patient closely watched for the slightest change in pulse and respiration, which indicates that the introduction must be stopped If, during the administration of the serum or immediately afterward, the respiration should entirely cease or the pulse become rapid and thready, it is advisable to withdraw some of the serum while the needle is still in position, or even to reintroduce the needle for the purpose immediately These alarming symptoms are not necessarily serious, but if the withdrawal of serum does not ameliorate the condition, artificial respiration should be at once instituted and protracted if necessary and epinephrin or other heart stimulant injected hypodermically Sometimes the exudate in the meninges is very thick and refuses at first to pass out through the needle Gentle suction with a syringe may be tried, or warmed sterile salt solution, or even the serum may be allowed to run in and then out in order to start the flow

The injection of the serum may also be controlled advantageously by employing a blood-pressure apparatus as advised by Sophian[21] The withdrawal of cerebrospinal fluid exerts an inconstant effect on the blood pressure Usually there is a fall, when the fall equals 10 mm of mercury, the removal is interrupted The pressure is then used as the guide to the quantity of serum injected As a rule, rapid injection with force causes a still greater drop Using the gravity method, it is advisable to allow ten minutes for the dose to run into the meninges, sometimes twenty minutes may be safer, especially in cases with low pressure at the beginning or in which the pressure dropped quickly A fall of the pressure of 20 mm of mercury in an adult with average pressure of from 110 to 120 mm of mercury is regarded as a proper indication to discontinue the injection Occasionally there is an initial rise in the pressure after a few cubic centimeters of serum have flowed in followed by a subsequent drop as larger quantities are injected Rarely the pressure rises materially after the injection is completed Through the use of this guide the quantity of serum given at a dose tends to be smaller than when the pressure is not taken In employing this control, the aid of an assistant is required to take the blood pressure

Mode of Action of the Serum—The serum acts locally on the meningococcus and on the exudate, and in this way arrests the infection and promotes subsidence of the inflammation and restoration of the damaged membranes To bring about these effects, it must be brought into direct relation and kept in continuous contact with the seat of infection Since the serum reaches the normal meninges not at all and the inflamed meninges very little from the blood, it is useless to inject it subcutaneously or even intravenously in expectation that it will find its way into the subarachnoid space Moreover, to be effective, it is necessary that the serum should be maintained continuously and in high concentration in the meninges, and as the cerebrospinal fluid is constantly leaving the subarachnoid space by way of the venous blood, the injections must be repeated at suitable intervals

The first effect of the serum is undoubtedly to injure the meningococcus, which quickly becomes reduced in numbers, is altered in size and staining property, is more numerously taken up by leukocytes (phagocytes), and especially loses its power to grow in cultures These changes may result from the first or a subsequent injection The morphologic alterations produced by the serum consist of swelling, fragmentation and weaker staining power of the meningococcus

The restraint put on the multiplication of and the degeneration produced in the meningococcus by the serum is promptly followed by a clearing up of the turbid or even purulent cerebrospinal fluid As the inflammatory exudate loses pus cells and returns to a limpid condition, the leukocytes in the general blood, increased during the accession of the inflammation, undergo reduction in number

In accounting for the beneficial action of the serum, its several properties and associated effects must be taken into account That it acts directly on the meningococcus and depresses its viability is readily shown both by film and culture tests The meningococcus is not only altered in form and made more readily phagocytable after one or several of the serum injections, but the disintegration products are also neutralized by the antiendotoxin contained in the serum Hence the serum possesses bacteriolytic, bacteriotropic (opsonic) and antiendotoxic properties Levy has prepared an interesting statement of the periods of disappearance of the meningococcus from the cerebrospinal fluid Thus in eighteen cases it was no longer found after the first injection, in thirty-three cases after the second, in thirty-five cases after the third, in fourteen after the fourth, in nine after the fifth, in four after the sixth, and in one after the eleventh

The injection of horse serum into the meninges is always followed by transient leukocytosis of the cerebrospinal fluid Hence when antimeningococcic serum is administered in cases in which the fluid is almost clear, it will be found more turbid on the next puncture twenty-four hours later This leukocytosis due to the aseptic inflammation induced by the horse serum is harmless, it quickly subsides Notwithstanding its power to induce leukocytosis, the arrest of the infectious process in cases in which the fluid is turbid or purulent nevertheless enables the serum to bring about rapid clearing up of the fluid

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[21] Sophian Epidemic Cerebrospinal Meningitis, St. Louis, 1913, p 54

Influence on Duration of Disease and Mode of Termination —Cases of meningitis are very varied in respect both to their intensity and to their evolution Rarely the disease sets in severely and yet terminates in recovery, sometimes in a few days, or the onset is mild, although later the infection develops an alarming gravity, while yet again the disease progresses slowly or continuously through weary weeks or even months to end usually, but not always, in death The cases of ordinary severity pursue a middle course, while the fulminant ones arise and terminate within from a few to forty-eight hours The last variety to be mentioned is the ambulant, sometimes called abortive cases [22] the subjects are commonly slightly ill so that recovery is the rule Nevertheless in rare instances death may suddenly supervene, while somewhat more frequently the slight illness intensifies progressively until the ordinary form is evolved

Accurate knowledge is lacking of the relative frequency with which the several types of meningitis occur in different epidemics Information of the frequency of the extreme cases—the fulminant and the abortive or ambulant so-called—is particularly desirable Probably the last two should not be thrown together, as the former tends to set in sharply and terminate in recovery by crisis, while the latter begins insidiously and later attracts attention by suddenly passing into the severe disease. Exceptionally an outbreak has been composed wholly of mild or abortive cases proved by bacteriologic examination of the cerebrospinal fluid to be epidemic meningitis The proportion of fulminant cases appears to be larger at the beginning than at the end of an epidemic Certain epidemics have been notable by reason of their absence Again, they have appeared in associated groups, one case following another in rapid succession in barrack, school or family

Neither the symptoms nor the mode of evolution support a definite prediction as to the probable course of the disease A sharp discrimination between the several clinical types of the disease set up is often wanting in practice Hence the outcome of single cases is an uncertain guide to the value of a therapeutic measure

Death may be considered as taking place under three sets of circumstances (*a*) rapidly, after sudden onset, as in fulminating meningitis, (*b*) through a gradual intensification of the symptoms and after a duration of six to ten days, or (*c*) slowly and after the disease has become chronic

Recovery also, when it occurs, is not by a single mode but at least two modes of termination The transition to convalescence and recovery is generally by a process of gradual amelioration of the symptoms, or lysis Exceptionally, the transition takes place abruptly by a sudden cessation of the symptoms, or crisis

The duration of the disease may be considered according to the period elapsing before either death or recovery takes place Flatten analyzed 1,481 cases according to the time of death Twenty-five per cent terminated within the first three days, 24 per cent from the fourth to the seventh day, and about 50 per cent later than the seventh day of illness Survival for the first weeks afforded no great insurance of recovery One half of the cases surviving the first week terminated between the fifth and eighth week

Viewed from the side of recovery, the duration fluctuated with the type of case Strümpell states that the critical period falls betwen the fifth and tenth day when either death results or convalescence begins, but the previous figures given do not bear out this formula Heubner states that the average duration of the disease terminating by lysis is from four to six weeks, Ziemssen gives from two to four weeks, and Holt's figures for the New York epidemic of 1904-1905 show that among 350 cases in which the patient recovered, the duration in 3 per cent was one week or less and in 50 per cent five weeks or longer

All the foregoing relates to nonserum treated cases The question now arises as to the influence of the serum treatment on the duration and manner of recovery Undoubtedly the usual mode of spontaneous recovery is by lysis, and the exceptional mode is by crisis The histories of 830 serum cases treated and recorded have been analyzed by Flexner from the point of view of the length of persistence of active symptoms and the manner of recovery As regards the first, the average period of active symptoms was eleven days This period does not embrace the entire time during which the patients were under observation, as recovery of lost strength and ability to resume ordinary vocations took a greater number of days But what is especially striking is the fact that in 30 per cent of the 830 cases, the cessation of the active symptoms was abrupt or by crisis But manner of recovery is influenced by the period of the disease at which the serum injection is begun, for while termination by crisis and by lysis occurs about equally when the injection of the serum is begun in the first three days of illness, the number of cases ending by lysis rises steadily when the injections are begun later than the third day Levy, who has especially considered the duration of the active symptoms under the serum treatment, states that in 127 cases it averaged 12 5 days, but calculated from the time elapsing after the first serum injection was given, it was only 6 86 days By termination of the disease is meant the disappearance of fever and usual symptoms and return of cerebrospinal fluid to normal One effect often persists for some time after all other active symptoms have abated, namely, stiffness of the neck with or without retraction Finally, and in due time this yields

COMPLICATIONS SEQUELS, RELAPSE, ACCIDENTS AND MIXED INFECTIONS

The attendant conditions arising in the course of epidemic meningitis are various The common complications are due to intercurrent infections of the respiratory tract, otitis media and certain rarer affections The sequels which are of specific nature affect various organs of importance Taken together they have included from 20 to 25 per cent of all cases accurately observed during the preserum period Since the employment of the serum has become more general, the occurrence of complications and sequels, aside from serum disease, has diminished Thus the French and German figures of the recent epidemic give from 20 to 25 per cent as the preserum figures Netter and Dopter have given for the serum period 6 3 and 6 2 per cent, respectively

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[22] Hochhaus H (Deutsche med. Wchnschr 1915 **41**, 1185) has observed a group of abortive cases in some of which the cerebrospinal fluid was clear contained an excess of albumin and in two instances revealed meningococci.

Sequels—The three severer specific sequels relate to the meningococcus infection of the internal ear, the eye and the joints, while other serious sequels consist of hydrocephalus, residual paralysis or impaired mentality The most frequent severe sequel is that resulting from the involvement of the structures of the internal ear The figures of the preserum period covering this affection as given vary from 12 to 33 per cent Among the 1,294 serum-treated cases analyzed by Flexner, permanent affections of the internal ear occurred in forty-five instances, or 3 5 per cent Deafness was complete in thirty-nine and partial in six instances The eyes are less frequently attacked The milder affection consists of meningococcic conjunctivitis, probably due to extension of the infection from the nose by way of the tear duct The severer affection is an iridochoroiditis or metastatic ophthalmia,[23] arising usually in one eye only, and frequently leading to destruction of the bulb The frequency for the preserum period given varies from 4 to 10 per cent of all cases, in Flexner's series the percentage was 1 Arthritis is also a variable sequel Severe inflammation and suppuration arise in part only of the affected joints When suppuration occurs, the injection of the antimeningococcic serum into the joint has been followed by prompt amelioration of the symptoms [24]

The frequency with which the sequels arise would seem to have been definitely influenced by the serum treatment except in the case of deafness due to involvement of the essential structures of hearing The attack on the auditory nerve and internal ear follows sometimes so soon after the appearance of the first signs of meningitis that the hearing is either already impaired or lost on the second day of illness But as, in not a few cases, the inner auditory apparatus is involved later in the course of the disease, it is quite probable that the prompt arrest of the infection, which often results from the serum, may serve to reduce materially the frequency with which this lamentable by-effect is produced

Paralysis and impaired mentality are infrequent sequels, but hydrocephalus is a frequent resultant of epidemic meningitis The internal form of hydrocephalus arises from interference with the escape of the cerebrospinal fluid, usually or invariably infected with the meningococcus, from the cerebral ventricles The imprisonment of the fluid is brought about sometimes from closure of the exits at the base of the brain by an inflammatory exudate plastered over the foramina of Magendie and Luschka In other instances, however, there is no organic obstruction but merely a functional lack of mechanical resistance which permits distention of the ventricles under moderate pressure, eventuating possibly in temporary obliteration of the outlets of the fourth ventricle by the weight of the dilated lower horns which press the cerebellum down against the medulla

The importance of the recognition of the essential pathology of internal hydrocephalus in epidemic meningitis arises from the fact that when separation has been effected between the spinal subarachnoid space and the cerebral ventricles, so that the antimeningococcic serum cannot be introduced into them through lumbar puncture, it may nevertheless be safely and even efficiently introduced directly by ventricular puncture Already several cases have been reported in which the infected and purulent ventricular fluid has been removed and replaced by the serum to be followed by complete recovery [25]

The technic of intraventricular injection of the serum is not attended with particular difficulty in young children with open fontanel The scalp over the anterior fontanel is shaved and rendered surgically aseptic The needle, which is about 8 cm long, is inserted near the lateral angle of the fontanel, about 2 5 cm from the median line, and is gently pushed downward and slightly inward toward the median line to a depth of about 3 cm, when the cerebrospinal fluid will usually begin to flow When this has ceased, a quantity of serum, usually considerably less than the amount of fluid withdrawn, is allowed to run in by gravity In older children and in adults a trephine opening is made at a point 3 cm above and behind the external auditory meatus before tapping the ventricles

Serum Disease—The use of the antimeningococcic serum, like all other therapeutic serums, is attended with so-called serum disease. It is even possible that this annoying, but usually harmless attendant on serum therapy is more frequent after subarachnoid than after subcutaneous administration From one third to one half of the treated patients develop some degree of serum disease The condition comes on about the eighth or tenth day with fever, the usual skin eruption, pain in the joints, digestive disturbance, etc. The important thing is not to mistake these symptoms for a relapse of the infection Usually any doubt may be immediately removed through lumbar puncture and examination of the cerebrospinal fluid, which will show few cells and no meningococcus The reinjection of the serum, under the impression that a relapse is threatening, is to be avoided for the reason that a temporary accession of the symptoms, including retraction of the head, may be induced through the fleeting aseptic chemical meningitis induced Moreover, because of the interval between the last injection and the reinjection, conditions may be favorable to the induction of the anaphylactic reaction, which should, of course, be avoided

Relapse—A certain number of the patients responding to the serum treatment suffer recrudescences or relapses of the severe symptoms This condition is attended by a reinvasion of the cerebrospinal fluid, previously clear or clearing, by the meningococcus It is sometimes difficult to state or determine just what constitutes a relapse, and the danger of confusing the condition with serum disease has just been mentioned. The most trustworthy guide, next to long and complete intermission of the symptoms, is afforded by bacteriologic and cytologic examination of the cerebrospinal fluid Returning turbidity of the fluid with increasing cell count, and especially the reappearance of the meningococcus, are decisive Prompt resumption of the serum injections often, but not invariably, suffices to suppress the reinfections of the meninges arising doubtless from some protected, because little accessible, active focus in the meninges or ventricles

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[23] Netter (Compt rend Soc. de Biol. 1915, **68**, 90) recorded two instances of suppurative iridochoroiditis due to meningococcus in which the intravitreous injection of the serum is stated to have led promptly to the abatement of the inflammation. Sight was retained

[24] Longo A. (Pediatria, 1917, **25**, 312, Abstr, The Journal A M A., 1917, **69**, 322), has just reported on 31 cases, of which 19 were were given adequate serum treatment and all recovered without appreciable sequels, while the remaining 12 either received no serum or were given in all one or two injections. Of the latter, 7 died and the other 5 were left with deafness, hydrocephalus, mental impairment, or convulsions

[25] Cushing and Sladen· Jour Exper Med., 1908, **10**, 548 Fischer L. New York Med. Jour, 1910, **91**, 625 Netter and Debré La méningite cérebro-spinale, Paris 1911, p 272 Bouché Jour de méd de Bruxelles, 1912, **17**, 61 Neveu Lemaire Debeyre, and Rouvière, Compt. rend Acad sc., 1916, **162**, 88 de Verbizier, A, and Chauvel, F (Bull et mém Soc. méd, 1916, **32**, 1138), report an adult case with recovery and refer to another successful case in an infant by Triboulet, Rolland and Fenestre. Korteweg. Nederl Tijdschr v Geneesk., 1917, **1**, 1340, Abstr, The Journal A. M A., 1917, **69**, 160

Accidents—Certain accidents, though rare, are known to attend the subarachnoid injection of the antimeningococcic serum They are sometimes alarming, but of very brief duration and sometimes so serious as to threaten life They arise chiefly from two causes (1) increased intracranial pressure, and (2) anaphylaxis The notion, advanced a few years ago, that the phenolic preservative employed to maintain sterility in the serum is the dangerous agent has not been supported by painstaking experimental study, and close observation of treated cases of epidemic meningitis[26] Attention has already been drawn to the importance of care in the introduction of the serum, which is best accomplished by the gravity method, in that way excessive intracranial pressure is guarded against Should arrest of the respiration, weak heart action and collapse occur, withdrawal of the serum, prolonged artificial respiration and cardiac stimulants by hypodermic injection are indicated Everything should be in readiness at the time the serum is administered to carry out these restorative measures Anaphylaxis, a far less frequent but apparently possible source of accident, is to be guarded against as in the analogous instance of other therapeutic serum injection by means of a desensitizing dose of the serum introduced subcutaneously

In this connection, it is well not to lose sight of the essential fact that in epidemic meningitis the struggle is with a highly fatal disease, and the one means now possessed to combat it is the antimeningococcic serum From this it follows that it is not justifiable to withhold the remedy because of a remote danger of accident when a far greater danger threatens by reason of the fatality of the disease itself

Mixed Infections—In certain instances mixed infections of the meningococcus and other pathogenic bacteria arise They are rare The severer and more frequent concomitant infecting micro-organisms are the staphylococcus, streptococcus and pneumococcus The first two have been known to be introduced into the meninges by the lumbar puncture needle, especially in cases in which many punctures have been made It is sufficient to point out this danger, in order to indicate the way to avoid it Concomitant infections with the tubercle bacillus have been reported by several bacteriologists The cases of mixed infection are uninfluenced essentially by the antimeningococcic serum and, invariably or practically so, end fatally

CONCLUSIONS

The foregoing presentation of the case for the prevention and specific treatment of epidemic meningitis is founded on what appears to be a considerable array of facts and trustworthy testimony of the feasibility of the one, and the marked success of the other There is, therefore, very little to add in the form of concluding remarks That every practical effort will be made by the military and civil authorities to control epidemic meningitis among our troops and our civilian population, we must believe It may, therefore, suffice to quote here the conclusion arrived at by the author after critical study of 1,300 cases of the disease treated with the serum supplied by the Rockefeller Institute

> It is our belief that the analyses of histories of cases of epidemic meningitis which have been presented, furnish convincing proof that the antimeningococcic serum, when used by the subdural method of injection, in suitable doses and at proper intervals, is capable of reducing the period of illness, of preventing, in large measure, the chronic lesions and types of the infection, of bringing about complete restoration to health, in all but a very small number of the recovered, thus lessening the serious, deforming and permanent consequences of meningitis, and of greatly diminishing the fatalities due to the disease

But, finally, it may be observed that these results, devoutly to be desired and capable of being accomplished, are all contingent on the production and administration of adequate preparations of the antimeningococcic serum And it may well be feared that unless proper control and standardization of the serum are undertaken, our hopes and just expectations will not be realized

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New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION W A PUCKNER, SECRETARY

CALCREOSE—A mixture containing in loose chemical combination approximately equal weights of creosote and lime

Actions and Uses—Calcreose, when administered internally, is claimed to have the same actions and uses as creosote It is claimed that calcreose does not readily produce gastric distress, nausea and vomiting

There is some evidence to indicate that by the use of calcreose, relatively large quantities of creosote may be administered, but it appears probable that such tolerance is due to the slower absorption and excretion and therefore decreased efficiency That the creosote contained in calcreose is liberated in the body is evident from the fact that during its elimination by the kidneys it has produced albuminuria and phenol urine

Dosage—From 0.25 to 1 Gm (4 to 16 grains) every two to four hours, beginning with small doses and gradually increasing until tolerance is reached. Calcreose may be given in the form of calcreose solution or as tablets (see below)

Manufactured by the Maltbie Chemical Co, Newark, N J U S patent No 1,047 961 (Dec 24 1912 expires 1929) U S trademark No 94789

Solution Calcreose—Prepared by adding 454 Gm (1 pound avoirdupois) calcreose to 3785 Cc. (1 gallon) of water, agitating occasionally during twenty four hours filtering and adding enough water through the filter to make 3785 Cc. (1 gallon) of solution

Dosage—Four to 8 Cc (2 to 4 fluidrachms) in a half glass of water followed immediately by one half glass of water, beginning with 4 Cc (1 fluidrachm) in one fourth glass of water

Calcreose Tablets 4 grains—Each coated tablet contains calcreose 4 grains

According to the patent specifications calcreose is made by the interaction of equal parts of creosote and lime in the presence of water A minute quantity of phenolphthalein is added to the finished product to improve the color of calcreose solution

Calcreose is a dark brown powder having an empyreumatic odor and a sharp phenolic taste It is partially soluble in water the alkaline solution containing calcium compounds of the phenolic bodies of creosote while the insoluble portion consists largely of calcium hydroxide and calcium carbonate.

BETANAPHTHOL BENZOATE (See N N R., 1917, p 197)

Betanaphthol Benzoate-Calco—A non-proprietary brand complying with the standards for betanaphthol benzoate.

Manufactured by The Calco Chemical Company Bound Brook, N J

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[26] Flexner Simon The Journal A. M. A., 1913 60, 1937 Auer J Jour Exper Med. 1915 21, 43

Therapeutics

FOOD FOR CHILDREN FROM TWO TO SEVEN

It is possible to fulfil the requirements of a proper diet, meet the conditions of present unusual prices, and still have a wide choice of foods for children from 2 to 7 years of age, according to a leaflet of the Department of Health of the City of New York. This leaflet was prepared on account of the dearth of compiled information on the feeding of the important group in the community between the ages named. It represents careful work by Drs. L. Emmett Holt, Graham Lusk, Linnaeus E. LaFétra and Godfrey R. Pisek, assisted in the computation of food prices by Dr. F. C. Gephart, and is said to be designed for the use of visiting nurses, social service workers and others coming in contact with those in need of instruction in food economies. Under present circumstances it may have practical application in a wide field.

TABLE 1.—COST OF FATS

	Cost of 1,000 Calories, Cents	Price per Pound, Cents
Cottonseed oil	7.3	31
Oleomargarin	8.5	30
Peanut butter	8.8	25
Butter	11.9	43
Olive oil	12.1	51
Bacon	13.8	37
Cream (extra heavy, 40 per cent.)	19.8	65 (pint)
Bacon, sliced, in jars	22.2	65

The leaflet outlines and gives the cost in calories, per pound, etc., for the ages named, of a diet sufficient (balanced), digestible and economical, containing the essential food substances, fat, carbohydrate (sugar or starch) and protein, besides other elements which must be considered — water, certain salts and "vitamins." These substances must be furnished in proper proportions to maintain health. It has been found that a healthy child from 2 to 4 years old requires daily from 1,200 to 1,400 food units (calories), from 4 to 7 years of age the amount should be from 1,400 to 1,700 calories.

TABLE 2.—COST OF CEREALS

	Cost of 1,000 Calories, Cents	Price per Pound, Cents
Corn meal, in bulk	3.6	6
Hominy, in bulk	3.6	6
Broken rice, in bulk	3.7	6
Oatmeal, in bulk	3.8	7
Samp, in bulk	4.2	7
Quaker Oats, in package	4.4	8
Macaroni, in package	4.5	13
Wheat flour, in bulk	4.6	8
Malt breakfast food, in package	4.8	14
Pettijohn, in package	5.3	12
Cream of wheat, in package	5.7	10
Farina, in package	5.9	12
Cracked wheat, in bulk	5.9	10
Pearl barley, in package	6.0	10
Barley flour, in bulk	6.1	10
Whole rice, in bulk	6.1	10
Wheatena, in package	8.1	14

Fats.—Regarding fats, it is said that both animal and vegetable fats are useful as foods, the animal fats being superior, however, and of these the most economical is said to be oleomargarin. The cost of the fats is given in Table 1.

Carbohydrates.—The carbohydrates include cereals, vegetables, breadstuffs, sugar and sweets. These are cheaper in bulk, and more expensive when purchased in special packages. When arranged according to their food value and price per found, the cereals appear as in Table 2.

It will be seen that, when purchased in bulk, oatmeal, corn meal, hominy, samp and rice are most economical. Their cost in that form is contrasted in Table 3 with the so-called ready-to-serve cereals with proprietary names. These proprietary foods are of higher cost and more difficult of digestion by young children, which more than offsets the ease of preparation.

TABLE 3.—COST OF READY-TO-SERVE CEREALS

	Cost of 1,000 Calories, Cents	Price per Pound, Cents
Shredded Wheat Biscuit	7.8	13
Grape Nuts	8.6	15
Force	9.4	16
Corn Flakes	11.7	20
Puffed Rice	23.5	52

Vegetables.—The cost and relative caloric values of the various vegetables are set forth in Table 4. The value of vegetables, it is said, depends not only on the amount of fat, carbohydrates and protein which they contain, but also on their richness in iron and other important salts, and on the amount of fiber, which aids proper action of the bowels. For these reasons they are indispensable to a proper diet notwithstanding their relatively high cost. Spinach, beet tops, chard and other "pot greens" are said to be of particular value. It is said, however, that for children of the ages under consideration, no raw vegetables, such as radishes, tomatoes, cucumbers, onions or celery, no green corn, peppers, egg plant or cabbage should be allowed.

TABLE 4.—COST OF VEGETABLES

	Cost of 1,000 Calories, Cents	Price per Pound, Cents
Turnips	20.0	2.5
Sweet potatoes	21.8	10.0
White potatoes	25.8	4.0
New beets	27.6	5.0
Onions	29.3	6.0
Spinach	30.0	3.3
Green peas	39.2	10.0
Lima beans	39.2	10.0
Cauliflower	42.9	6.0
Carrots	50.0	8.0
String beans	55.6	10.0
Squash	76.2	8.0
Lettuce	89.4	7.0
Celery	214.0	15.0

Breadstuffs.—Hot bread or rolls, griddle cakes and doughnuts should not be given to young children, but corn bread should be used for at least one meal a day. Bread and rolls should be stale or dried on the stove or in the oven till crisp. The costs of the various breadstuffs are given in Table 5.

TABLE 5.—COST OF BREADSTUFFS

	Cost of 1,000 Calories, Cents	Price per Pound, Cents
Ginger snaps	6.3	12.0
Graham bread	8.2	10.3
White bread	8.5	10.3
Rye bread	8.7	10.3
Graham crackers	9.2	18.0
Soda crackers	9.4	18.0
French rolls	10.8	14.0
Uneeda Biscuit	12.4	24.0

Sugars and Sweets.—No candy or chocolate should be given before a child is 5 years old, it is said, and then not more than one piece a day. Not more than one teaspoonful of sugar should be given on a dish of cereal.

Protein Foods—One of the greatest difficulties, it is said, in furnishing a proper diet at moderate cost is to supply the proteins in the amount needed These foods as a class cost much more than either fats or carbohydrates The cheapest and best protein for children, even at present prices, is said to be milk Costs and values of proteins are given in Table 6

TABLE 6—COST OF PROTEINS

	Cost of 1,000 Calories Cents	Price per Pound Cents
Milk (Grade A)	19 5	13 (quart)
Roast beef (rib)	23 4	26
Buttermilk	26 5	9 (quart)
Lamb chops (loin)	32 7	43
Lamb chops (rib)	34 9	39
Young codfish (fresh)	38 6	12
Chicken (roasting)	41 3	32
Eggs	44 7	45 (dozen)
Beef steak (round)	45 6	34
Haddock	46 0	12
Flounder	50 0	12

Fish at certain seasons are cheap and useful Vegetables high in protein may largely replace meat in the diet, such as beans and peas fresh or dried, which may be given as soups Together with milk and bread, they may entirely replace meat Wheat and oats contain most protein Among the protein foods interdicted for children are sausage, pork, ham, liver and smoked, salt or dried fish

Fruits—Fresh fruits, though expensive except for the short time when they are in season, should be given freely It is said, however, that berries, cherries, pineapple and plums should not be given, since they are not easily digested, and are usually expensive A warning is given against stale or unripe fruit, or fruit out of season Bananas should be thoroughly ripe, or else baked or boiled The more extensive use of stewed dried fruits is urged Fruit should be given with other foods and not between meals The costs of fruits are set forth in Table 7

TABLE 7—COST OF FRUIT

	Cost of 1 000 Calories Cents	Price per Pound, Cents
Fresh (in season)		
Grapes	14 9	5
Rhubarb	15 4	1
Bananas	20 0	6
Apples	23 7	5
Pears	46 0	12
Oranges	58 8	10
Peaches	96 7	15
Dried		
Prunes	8 4	10
Apples	11 1	15
Peaches	12 5	15
Apricots	15 5	20

Desserts—Desserts permitted to young children are plain puddings made from rice, farina, cornstarch or stale bread, custard, junket, ice cream not oftener than twice a week and in small portions, bread with (corn) syrup or jelly, plain cookies, gingersnaps, sponge cake or lady fingers once daily with meals Pastries, pies and rich cakes, particularly those made with nuts and dried fruit, are forbidden

Drinks—Milk, not less than a pint nor more than a quart daily, at present prices, is cheaper and better than any other food of equal caloric value It is indispensable for younger children Cocoa, made with milk, may be substituted for milk in cold weather Children should drink from two to four glasses of water daily Tea, coffee, wine, cider and soda water are interdicted

Habits to Be Avoided—Food at other than regular meal times, entire meals consisting of only one article of food, imperfect chewing of food, rapid eating with much drinking during meals, feeding between regular meals, coaxing or forcing the child to eat without appetite

Cooking—Cereals should be cooked for not less than one hour, and most of them for three hours A double boiler or a fireless cooker may be used Green vegetables should be cooked with very little water, all vegetables should be thoroughly cooked Potatoes should be boiled with the skins on and peeled afterward, thus saving at least one sixth of the potato Meats should be roasted, broiled or boiled, neither meat, chicken nor fish should be fried Roasted or broiled meats should be eaten rare Eggs should not be fried Meat stews with potatoes and other vegetables are to be recommended, provided they are thoroughly cooked and the fat has been removed Clear soups have almost no food value, but when vegetables, barley, noodles or rice are added are useful foods Thick soups, especially those made with peas and beans, with the addition of milk, are nutritious and cheap, and, it is said, can largely replace meat and eggs in the diet

Sample Diets—Following are sample diets furnishing sufficient quantities of food for healthy growth, but omitting meat on account of its high cost

SAMPLE DIET—TWO TO FOUR YEARS

Breakfast, 7 a m Cereal (oatmeal hominy, rice or corn meal), 2 to 3 good tablespoonfuls with 1 even teaspoonful sugar and 2 ounces milk Crisp toast or bread (stale), one or two slices with butter Milk, 8 ounces from cup

Morning lunch, 10 30 a m Milk, 6 ounces Bread (stale), one slice

Dinner, 1 30 p m One egg, or cup thick soup Rice or macaroni, 2 tablespoonfuls, or one small baked potato Fresh vegetable 2 tablespoonfuls Stewed fruit, 3 or 4 tablespoonfuls Bread, one or two slices, with butter Water

Supper, 6 p m Cereal, 2 or 3 good tablespoonfuls with sugar and 2 ounces milk Milk 6 ounces, from cup Bread and butter, one slice. Custard, junket or plain pudding, 2 to 4 tablespoonfuls

SAMPLE DIET—FIVE TO SEVEN YEARS

Breakfast 7 30 a m Cereal (as given for two to four years), 4 tablespoonfuls with 1 teaspoonful sugar and 2 ounces milk Bread (stale) (white, graham or corn bread), or toast with butter, two slices Fruit, one fully ripe banana, peach, pear, or grapes in season Cocoa made with milk, one cup, or milk, 8 ounces

Dinner, 12 30 p m Meat stew with vegetables, or soup made with milk and peas or beans, or fish, or egg Potato rice, samp or macaroni with oil or butter Fresh vegetable (spinach chard, squash carrots, turnips string beans, boiled onions or celery), 3 tablespoonfuls Bread and butter, one or two slices Stewed dried fruit (apples, peaches prunes, apricots), 3 or 4 tablespoonfuls Ginger snaps or plain cake or jelly sandwich. Water

Supper, 6 p m Cereal as at breakfast, with soup, or one egg Bread (stale), two slices, with butter or peanut butter Cup of cocoa made with milk. Plain pudding made with milk, or stale bread with corn syrup

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Old Age Dependency—It is estimated that one and one-quarter million persons in the United States who have reached the age of 65 are in want and are supported by charity, public and private. This means that 28 per cent., or, in other words, more than one out of every four are dependent on public or private charity In Massachusetts, where an excellent census was recently completed (1915), it was found that close to 35,000 persons out of a total of 190,000 were the recipients of public or private relief This constitutes 18.2 per cent. of the total population 65 years and over, but does not include a very large number who received assistance or maintenance from relatives and other unregistered sources—Louis I Dublin, *The Vital Statistics of Old Age*

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SATURDAY, SEPTEMBER 8, 1917

NERVE REGENERATION AND THE NEUROTIZATION OF PARALYZED MUSCLES

Despite the high degree of perfection which surgical technic and aseptic procedure have attained, the transplantation of certain organs into the body has encountered unexpected if not insurmountable difficulties In the case of thyroid tissues, for example, it appears that success may be obtained only when there is an actual dearth of similar functioning tissue in the organism which receives the transplant Likewise the transplantation of parathyroids, even in the same species, seems to succeed far more readily in the case of individuals previously deprived of these glandular structures In those endowed with a suitable parathyroid outfit, additional transferred glands apparently undergo atrophy In other words, the retention or survival of functional capacity in such structures depends on a physiologic need of their activity in the organism involved

A somewhat comparable experience has just been reported by Elsberg[1] in attempts to secure functionally successful nerve implantations in muscles He found that it is quite possible to reestablish effective neuromotor connections in paralyzed muscles by the implantation either of nerve from the same muscles or of foreign nerve Stimulation of either implanted or reimplanted nerves may be followed by good contraction of the muscle, and such neurotization of a muscle is still possible even when it has been deprived of its nerve supply for many weeks But Elsberg has also found that hyperneurotization of a normal muscle is impossible, a normal muscle cannot be made to take on additional nerve supply The implanted nerve cannot make any neuromotor connections, and its stimulation will usually fail to have any effect on the muscle If, however, the muscle is permanently separated from its original nerves, then the implanted nerve — which until now has been unable to form a connection with the muscle fibers — will establish neuromuscular connections, and electric stimulation of the nerve will soon cause normal contractions of the muscle

These studies prove that if a muscle once has its normal nerve supply, *no other motor nerve is able to make neuromuscular connection with the same muscle* But, further than this, Elsberg has ascertained that if the normal nerve is cut and reimplanted into a muscle and at the same time a foreign motor nerve is also implanted into the same muscle, *only the former will make neuromuscular connections* Why or how the normal nerve of a muscle gains ascendency over the foreign nerve affords an interesting though unanswered speculation Elsberg remarks that it is impossible at present to state whether the discrimination is due to a more rapid regeneration of the normal nerve or to the fact that the regenerating normal nerve has an inhibitory influence on the intramuscular regeneration of the foreign implanted nerve The axis cylinders of the normal nerve to the muscle seem to be able to reestablish their former connections with the end plates or bulbs or to form new end organs more quickly or more powerfully than do those of a nerve which has belonged to a different muscle

BENCE-JONES PROTEINURIA

In 1847, Bence-Jones presented before the Royal Society of London a paper, "On a New Substance Occurring in the Urine of a Patient with 'Mollities Ossium,'" in which he described for the first time the substance since known as the Bence-Jones protein It was rediscovered and described by Kuhne[1] in 1869 In view of certain chemical reactions, particularly peculiar changes of solubility in the urine under the influence of heat, the Bence-Jones protein has often been classed with the proteoses, such as those formed in the partial digestion of native proteins

More recent investigations, in which the newer chemistry and knowledge of the biologic relations of the proteins have been taken into account, make it seem less likely, if indeed at all probable, that the Bence-Jones protein which occurs in the urine of patients with multiple myeloma of the bones is of a proteose nature Taylor and Miller[2] of the University of Pennsylvania have ascertained, for example, that the Bence-Jones protein separated from the urine exhibits powers of sensitization and anaphylactic response in suitable test animals Accordingly, they have concluded that the anaphylactic activity of this protein confirms the belief that it is a higher protein of individual biologic stamp and not a degradation stage in the hydrolysis of any body protein The proteoses produced by hydrolysis are not anaphylactically active

The separated Bence-Jones protein is easily digested under appropriate conditions by both the gastric and the pancreatic proteolytic enzymes Hopkins and Savory,[3] who made an elaborate study of this protein at the University of Cambridge, England, concluded that it yields all those amino-acids which are to be obtained from typical proteins, and is therefore not a fractional product arising from the partial breakdown of protein in metabolism Correspondingly, Taylor and his colleagues have decided that the protein is not proteose, but a higher protein of definite biologic stamp — a human product closely resembling the normal blood proteins

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[1] Elsberg, C A Experiments on Motor Nerve Regeneration and the Direct Neurotization of Paralyzed Muscles by Their Own and by Foreign Nerves, Science, 1917, 45, 318

[1] For a historical account, see the dissertation of Rosenbloom, J A Contribution to the Study of the Nature and Origin of the Bence Jones Protein, New York Columbia University, 1909

[2] Taylor, A. E, and Miller, C W Studies in Bence Jones Proteinuria, Jour Biol Chem, 1916, 25, 281

The striking feature of Bence-Jones proteinuria, as it has been expressed by Taylor, Miller and Sweet[4] is the free passage of large quantities of the protein through a kidney which holds back the normal serum proteins Experiments on animals show no direct toxicity of the protein Normal subjects are able to utilize or catabolize a moderate amount of Bence-Jones protein, even when this is injected rapidly into the circulation, but a limit is soon reached beyond which the excess protein is promptly excreted in unchanged condition It has been pointed out[2] that if the Bence-Jones protein is to be regarded as foreign to the tissues of the subject, we should expect, according to the Abderhalden hypothesis, that a special ferment would soon be aroused to destroy it in the body, and certainly there would seem to be nothing in the nature of the substance itself to resist such a fate Yet instead of being digested, large quantities of it are excreted in its native condition, apparently free from hydrolysis, and this may continue indefinitely Under such circumstances we must dismiss the idea of a protective ferment

With respect to the origin of the unique protein, the Philadelphia investigators have discussed two sources The protein may be a special product of the tumor cells of the myeloma, or it may be a normal or possibly aberrant stage in the synthesis of some body protein, the completion of which is interfered with by deficiency of some necessary condition The Bence-Jones protein is of endogenous origin in any event The supposition that it arises in the bone marrow is a natural one in view of its association with disease of this tissue Rosenbloom[1] at one time actually ventured the assumption that the protein may be formed from osseo-albuminoid by the action of enzymes present in the bone marrow But Taylor, Miller and Sweet[4] believe that the surprisingly large amounts secreted — as much as 30 gm per day in their case — would indicate some more general source In view of its biologic reactions, they prefer to relate it more closely to the blood proteins, and to ascribe its origin to an interrupted or abnormal synthesis of some normal body protein The protein evidently circulates with great freedom throughout the body, for it has been found in the pleural fluid and in the blood in determinable amounts As its origin still remains obscure, renewed efforts should be made to discover new cases of its occurrence and to investigate them intensively

THE HUMIDITY OF SCHOOLROOMS

We have referred on previous occasions to the lack of evidence concerning the effect on health and comfort of the relative humidity in living rooms The hasty assumption that a low relative humidity means similar dehydrating power, whether in a desert or in a schoolroom, is obviously unjustified Consideration of the principles of elementary physics is sufficient to show that other factors, such as air movement and air temperature, are of great importance in determining the loss of heat and of moisture from the human body The emphasis sometimes laid on "humidifiers" and humidifying processes by newspaper sanitarians may conceivably divert attention from more significant matters It is plainly impossible to maintain proper atmospheric conditions of any sort without taking into account air temperature and air motion as well as air humidity The useful if somewhat awkward expression, "air-conditioning," has come to represent for ventilating experts the sum total of the factors involved

Palmer, of the New York State Commission on Ventilation, recently presented a paper at the Chicago meeting of the American Society of Heating and Ventilating Engineers which brought out this point with great force and clearness Very interesting dryness records in rooms of public schools were cited, showing plainly that comfort does not depend solely on humidity In one building, three fan-ventilated, humidified rooms were contrasted with three window-ventilated, unhumidified rooms The five complaints of excessive dryness that were received from teachers all came from the fan-ventilated, humidified rooms There are many things to be considered in such studies The rate of evaporation from the body is perhaps even more affected by air movement than by relative humidity The sensation of dryness is not always measurable by the loss of water from the body As Palmer says "On a cold windy day in winter we feel dry This sensation must come not from a water loss that is at all comparable [with what occurs in summer] but from the appreciable evaporation of what water is accessible on the skin, and the failure of the cold, contracted, waterless skin surface to keep the supply up to the demand" It is within the experience of every one that the sensation of dryness becomes acute under conditions in which the water loss from the body cannot be made up by drinking

The question of the evaporation of water from the nose and lungs is of course on a somewhat different footing from that relating to the whole body Here, however, excessive humidity seems to be more detrimental than slight humidity The nasal mucous membrane of the workers in the warm, moist atmosphere of laundries appears to be in a worse condition than that of the firemen and boiler tenders who are exposed to hot, dry air According to Palmer, respiratory affections among schoolchildren are associated with high temperature rather than low relative humidity

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[3] Hopkins F G and Savory H Jour Physiol. 1911 42, 189

[4] Taylor A. E Miller C W and Sweet, J E Studies in Bence Jones Proteinuria II Jour Biol. Chem 1917 29, 425

It is certainly not fair to state or to imply that schoolrooms admittedly dry and drying are as dangerous to health as deserts The known physiologic effects of life in deserts are not duplicated in our northern schoolrooms in winter, even if the relative humidity is "lower than in deserts" The loss of moisture from wet objects and from the human body is much less Even the sensation of uncomfortable dryness is absent in schoolrooms with a low relative humidity, but without excessive continuous air flow and too great warmth (over 68 F) As Palmer well expresses it "Relative humidity by itself is thus a criterion of neither dryness nor dryingness, nor the sensation of dryness"

YEAST

From time to time yeast has attained a transitory popularity as a therapeutic agent Its use in this way in practical medicine has been based essentially on empiric considerations Yeast is rich in nucleic acid, but this has not found any special applications The fat-like substances obtainable from yeast have been recommended in certain alimentary conditions, without finding any widespread acceptance

More recently yeast has acquired interest from somewhat different angles In these days of food shortage and enforced conservation, it has come to be realized that the minute yeast cells are endowed with a remarkable capacity of synthesizing one of the most valued nutrients, namely, protein This substance can be built up out of the simplest forms of nitrogenous compounds by yeasts, in contrast with the incapacity of the higher organisms to construct protein out of anything less complex than the ready made amino-acids It is reported that in Europe yeast has actually been grown on a large scale in solutions of sugar, salt and simple nitrogenous compounds for the sake of securing the much desired proteins The utilization of yeast protein for cattle feeding is a current practice abroad, and the satisfactory digestibility and availability of the same product by the human organism has repeatedly been announced since the beginning of the war[1] In this country the yeast which is produced as a by-product of the brewing industry is for the most part discarded as waste, in the distilleries it becomes a part of the distillers' grains that are extensively employed as feeds in the dairy industry

Still newer is the indication that yeast is comparatively rich in at least one of the as yet unidentified accessory factors in nutrition now popularly spoken of as vitamins Hopkins[2] of the University of Cambridge, England, first directed attention to this unique property of yeast It has been verified by Funk and Macallum,[3] and recently Osborne and Mendel[4] have given substantial evidence of the potency of yeast to render a diet not otherwise capable of inducing maintenance effective in nutrition

Yeast has been used, like extracts of rice polishings, to cure the experimental polyneuritis induced in birds by a diet of polished rice From the experiments of Osborne and Mendel it appears that less than 2 per cent of dried brewers' yeast suffices to induce small experimental animals to grow on artificial food mixtures on which alone they fail to thrive How the use of yeast as an adjuvant to otherwise inadequate food mixtures exerts its beneficial effect is not yet made clear Satisfactory growth in these cases is promoted by liberal eating Anything which renders food more palatable may stimulate one to eat more liberally of it This can scarcely be the explanation of the potency of the yeast as it is effective even when fed apart from the rest of the food It may have a favorable effect on the metabolism and thus improve the general condition so that more food is consumed Small quantities of milk and extracts of many of the common plant foods, such as the cereal grains, have been found to act in the same way There seems to be little doubt, therefore, that yeast also contains something comparable with the so-called water-soluble vitamins of the diet A specific need for yeast can scarcely be predicated on this fact, however, for any well selected human dietary containing the usual variety of animal and vegetable foods is not likely to be devoid of the widely distributed water-soluble type of vitamin We mention this to check premature enthusiasm for a new vitamin

VITAMIN DEFICIENCY AND DISEASE

The expression, "deficiency disease," has come to be employed in the highly restricted sense of a disorder of metabolism due to the lack of some specific unidentified dietary substance or "vitamin" in the ration Like most novel conceptions, it readily found enthusiastic advocates, precisely as the demonstration of the undisputed existence of diseases of bacterial origin made infection a popular explanation of all manner of unsolved maladies The hypothesis at the basis of the current explanation of deficiency diseases was strikingly verified in the investigations of the pathogenesis of beriberi It is not surprising, therefore that such pathologic puzzles as scurvy, pellagra, rickets and other as yet unexplained diseases have been put into the same class. And thus a multiplicity of vitamins has been postulated.

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[1] Yeast in a New Role, editorial, The Journal A M A, April 29, 1916, p 1390, Yeast Nutriments in Bread Making, Sept 30, 1916, p 1023

[2] Hopkins, F G Jour Physiol, 1912, **44**, 425

[3] Funk, C, and Macallum, A. B Jour Biol Chem, 1915, **23**, 413, 1916, **27**, 51 Funk, C Jour Biol Chem, 1916, **27**, 1

[4] Osborne, T B, and Mendel, L B The Role of *Vitamines* in the Diet, Jour Biol Chem, 1917, **31**, 149

The probable failure of the theory of a specific deficiency in the diet to account for the genesis of scurvy has recently been reviewed in THE JOURNAL.[1] The all but complete demonstration that scorbutus is the outcome of a diet inappropriate in its physical rather than its chemical make-up justifies an attitude of skepticism regarding the validity of the "vitamin" theory of the etiology of the other diseases now classed in the same general category. The essentials of an adequate diet can now be formulated with a presumable dependability not approached before the modern studies of nutrition.[2] They are believed on the basis of experiment rather than mere conjecture, to include protein of suitable quality and in adequate amounts, an abundance of available energy in the form of digestible nutrients, suitable inorganic substances, and an appropriate content of water-soluble and fat-soluble dietary factors not heretofore identified.

Evidently malnutrition of a severe type may attend the consumption of a diet defective in respect to any of these several factors. When none of them is missing, as far as the trained student of nutrition can discover, it is imperative to search for some defect of texture or some other latent alimentary danger before the more convenient hypothesis of a new specific vitamin deficiency is elaborated. In view of the fact that several alleged "deficiency diseases" are actively under investigation at the present time, it seems worth while to record a recent prediction of McCollum and Pitz.[3] Trained in the intensive study of nutrition in health and disease, they venture the belief that inquiry will establish what is now all but demonstrated, namely, that unfavorable proportions among the well recognized constituents of the diet as well as of the two recently appreciated ones, together with unsatisfactory physical factors and injury wrought through the agency of micro-organisms inhabiting the alimentary tract, will account for all the observed types of pathologic functioning which are referable to errors in the diet.

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[1] The Etiology of Scurvy, editorial, THE JOURNAL A. M. A., Sept. 1, 1917, p. 728.

[2] For a comprehensive review of the subject compare McCollum, E. V.: The Supplementary Dietary Relationships Among Our Natural Foodstuffs, THE JOURNAL A. M. A., May 12, 1917, p. 1379.

[3] McCollum, E. V., and Pitz, W.: The Vitamine Hypothesis and Deficiency Diseases: A Study of Experimental Scurvy, Jour. Biol. Chem., 1917, **31**, 229.

Biology and the Citizen.—The time has come when one cannot be a good citizen without some knowledge of biology. The person who does not believe in vaccination or the so-called "germ theory" of disease or quarantines, who fights against taxes to improve the water supply or to dispose of sewage or to get rid of malarial mosquitoes, who opposes the appointment of health officers, or the scientific inspection of milk and other foods, or the medical examination of school-children, is not only an ignoramus but he is also a bad citizen.—E. G. Conklin, *Yale Review*.

Current Comment

MEDICAL STUDENTS, INTERNS AND THE DRAFT

Elsewhere in this issue appears the official announcement of the regulations prescribed by the President as a solution of the serious question of drafting medical students and hospital interns. This announcement comes as a logical and welcome conclusion to THE JOURNAL'S campaign on this vital question. The facts obtained from THE JOURNAL'S questionnaire relative to the number of medical students that would be drafted left no doubt that the medical situation of the future would have been threatened as regards both military and civil life. All will rejoice, therefore, that a practical solution of the problem has been discovered. As has been repeatedly stated, the Provost Marshal decided that there is no provision in the selective service law of 1917—the conscription law—under which medical students can be exempted or discharged. The solution discovered, however, utilizes a section of the National Defense Act, which was passed in 1915, and which became effective in June, 1916. It is under this same law that the Medical Officers' Reserve Corps is organized. This law, it will be remembered, in addition to providing for an Officers' Reserve Corps also provided for an Enlisted Reserve Corps. Medical students and interns who have been drafted therefore will be in the same relative position to the Army as physicians who are members of the Medical Officers' Reserve Corps, not on active duty. At the same time, and in like manner, they will be subject to assignment to active duty when any emergency may require. This means, of course, that if a young man should decide not to continue his medical education he would be subject to order to active duty.

THE ALVEOLAR AIR IN ASTHMA

In asthma, and in obstructed expiration in general, there is a disturbance in aeration in the lungs. This is shown with scientific accuracy by the increased content of carbon dioxid that has been measured during the asthmatic attack by various investigators. The explanation of the admittedly insufficient aeration of the blood has been a debated point. Not long ago Hoover[1] attributed the disturbance to a respiratory cause. He concluded from his studies that "the real difficulty of ventilation in asthma lies in a distention of the infundibula, and this fails to permit an equal diffusion of carbon dioxid throughout the alveolar air." Friedman and Jackson[2] of the Laboratory of Physiology at the University and Bellevue Hospital Medical College, New York, have, however, pointed out that the extremely ready diffusibility of carbon dioxid gives little plausibility to Hoover's hypothesis. As the result of careful experimental studies, they are inclined to believe that a circulatory factor is the important one

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[1] Hoover, C. F., and Taylor, Lester: The Ventilatory Function of the Lung in Emphysema and Asthma, Arch. Int. Med., January, 1915, p. 1. Hoover, C. F., and Gammon, J. E.: The Dead Space in Moderate and Large Respiratory Ventilation, ibid., April, 1915, p. 591.

[2] Friedman, E. D., and Jackson, H. C.: The Carbon Dioxid Content of Blood and of Alveolar Air in Obstructed Expiration, Arch. Int. Med., May, 1917, p. 767.

The cough in asthmatics, along with the voluntary attempts to aid respiration, would accentuate the embarrassment of the lesser circulation in the lungs The positive intrabronchial pressure during the prolonged expiration inevitably interferes with the free flow of blood through the pulmonary capillaries, as Friedman and Jackson have demonstrated experimentally There is a damming back of the blood on the venous side, with little opportunity for gaseous exchange As a consequence, there is an accumulation of carbon dioxid in the blood with the liberation of the gas into the alveolar air, chiefly during the short inspiratory phase of asthmatic breathing The low pulse pressure, probably due to diminished systolic volume, the enlarged veins in the neck, and the cyanosis suggesting a certain amount of general venous stasis that appears whenever a rise in intrathoracic pressure interferes with a free flow of blood to the heart, are added clinical phenomena observed in asthma, furnishing further grounds to suspect that circulatory disturbances are primarily responsible for the conditions associated with obstructed expiration

THYROID, PARATHYROID AND CARBOHYDRATE METABOLISM

Much of the evidence respecting the possible rôle of the endocrine glands in the metabolic functions is so conflicting or uncertain that every series of findings that are reasonably concordant deserves more than passing notice There are continually recurring suggestions of a relationship between the thyroidal structures, which include both the parathyroids and the thyroids proper, and carbohydrate metabolism Precisely what the nature of this connection is has not been solved Underhill[1] and his collaborators have deduced from an experimental standpoint the probability that the parathyroids exercise a more profound function in regulating carbohydrate transformations than do the thyroids They assert that after thyreoparathyroidectomy the assimilation limit for glucose given by mouth or subcutaneously is significantly lowered in dogs Thyroidectomy alone fails to produce such an effect On the other hand, the extirpation of three parathyroids causes a diminished assimilative power for glucose, and the removal of three parathyroids plus one thyroid produces no greater effect than is observed after the excision of the three parathyroids alone With two intact parathyroids, the power of the body to utilize sugar is not decreased even in the complete absence of the thyroids In a new group of experiments, Janney and Isaacson[2] of the Montefiore Hospital for Chronic Diseases, New York, have observed that the blood sugar after thyroidectomy showed a marked decrease, averaging about 25 per cent less than the normal value Whereas the feeding of glucose in suitable quantity to normal fasting animals provokes a hyperglycemia lasting several hours, in these investigations after thyroidectomy, glucose fed under the identical experimental conditions failed to raise the blood sugar to the level attained before the operation Although there thus is some conflict of opinion as to what part of the thyroid-parathyroid outfit is really responsible for these effects on the behavior of carbohydrate in the organism, evidence is accumulating, as Janney and Isaacson remark, to show that a persistent low sugar content may be a sign of insufficient internal secretion of some sort They have observed hypoglycemia in cretinism It is present in myxedema, in Addison's disease, and after removal of the suprarenal bodies The experimental fact that there is a lessened tendency to hyperglycemia on carbohydrate ingestion after thyroidectomy has stimulated the New York investigators to suggest that the removal of thyroid tissue might lower the blood sugar in diabetes mellitus, possibly with beneficial results This is at present nothing more than a speculation, but it is one not devoid of immediate interest and suggestiveness in relation to human pathology

PREYING ON THE YOUNG SOLDIER

Writes a physician

> "The enclosed envelope with contents was sent to my son, who is drafted for the Army Evidently all of these boys are getting it Something ought to be done to protect the boys"

The envelope contained a card on one side of which was printed a picture of the "Heart of Hot Springs, Ark," headed "World's Garden of Health Controlled by U S Government" On the other side the Microzone Medicine Company of Hot Springs, Ark, advertises "the only treatment which will positively cure inherited or contracted specific blood poison permanently" Further, the recipient is told that "out of 7,000 patients who have taken our treatment not one has failed to be cured permanently Many were cured privately at home by mail " In addition to the card, the envelope contained two crude facsimiles of ten dollar Confederate bills, on the back of which "Microzone," the "King of all treatments for blood poison," was advertised—"$25 for full treatment!" The Microzone Medicine Company, according to material in our files, is operated by a quack, one J M Byrd, whose license the Arkansas authorities revoked in 1913 In a letter written in 1914 Byrd said "I am now confining myself to the sale of a syphilitic cure and I can make more money in that way and make it much easier than to do a general practice" At the same time Byrd was advertising a pamphlet with a salaciously suggestive title Now, it would seem, Mr Byrd would make more easy money by selling a fake syphilis cure to the young men who make up the National Army Some men make a living out of war by robbing the dead on the battlefields, they at least do not impair the efficiency of the army Other men rob the boys in khaki while they live, taking both money and health They do this at a safe distance from the firing line and use as an instrument the United States mails

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[1] Underhill, F P, and Blatherwick, N R Studies in Carbohydrate Metabolism, VI, The Influence of Thyreoparathyroidectomy upon the Sugar Content of the Blood and the Glycogen Content of the Liver, Jour Biol Chem, 1914, **18**, 87

[2] Janney, N W, and Isaacson, V I The Influence of Thyroidectomy on the Blood Sugar, Proc. Soc Exper Biol and Med 1917, **14**, 99

RUNNING TRUE TO FORM

"Form," "style," "type" or "character" signifies that indefinable something in every man that enables one to know what is the height of that man's possible achievement and what he may be counted on to do under any given circumstance Therefore, when a motley crew of long-haired individualists were driven from pillar to post in their efforts to hold a meeting for the purpose of deriding the government and hindering its efforts in the war, when they finally found a haven in Chicago and were given police protection by its burgomaster, when finally they assembled to hear their favorites orate and berate from the rostrum, who occupied that exalted position? None other than Nuxated Iron Mason, whose blood—"nuxated"—runs cold at the thought of Americans going to war, and ex-Senator Works, the "old reliable," who, when in the Senate, could always be counted on to obstruct any measure for the good of the public health Here they were again—running true to form

POPULAR IMPRESSIONS ABOUT DENTAL CARIES

The subject of dental caries has long been actively debated both by the few who have given some scientific attention to the problems of defective teeth, and by the many who are satisfied with hasty and haphazard, empiric generalizations as a basis for the diffusion of information In this field, as in so many others, the acquisition of more accurate information has served to dispel many of the illusions fostered by the propaganda of years Every item of dependable knowledge about dental decay is doubly welcome at the present time, when the medical examination of thousands of the young men of America in the prime of life is exhibiting an almost appalling condition of the teeth Furthermore, every device of clever advertising is being employed to win converts to some particular form of tooth powder, paste or mouth wash on the basis of the unguarded statements of enthusiastic manufacturers who understand the psychology of the purchasers A recent investigator[1] has contributed evidence of the unreliability of two of the more popular impressions about the teeth One is that the teeth of primitive races are relatively immune to caries This is not borne out by inquiry as to the conditions of such peoples from different parts of the world Many of them seem to be quite as subject to toothache as is the average American The second negatived popular impression is that which has associated dental caries with a diet preponderating in carbohydrate Protein-eating races are apparently quite as susceptible to these tooth defects Meat eaters have no advantage over the vegetarians Perhaps it will appear that the prevention of stagnation within the oral cavity is a far more potent factor in the freedom from caries than the indefinite feature of the chemical type of the diet In any event, there is little basis for the cocksure claims which support the panaceas to which our public is so partial

THE FATE OF INOSITE IN THE BODY

The repeated attempts in recent years to find a place for phytin and similar organic compounds of phosphoric acid in human therapy lend interest to the physiology of the constituent groups The futility of expecting any unique advantage from the phosphoric acid component because it is administered in the form of an ester or some comparable organic derivative has been clearly exposed in The Journal[1] In addition to phosphoric acid, phytin and analogous plant products yield inosite, $C_6H_{12}O_6$, a compound highly suggestive of carbohydrate relationships, though it is in reality hexahydroxybenzene In the past, experiments with inosite have indicated that it is not readily utilized[2] A considerable amount may disappear when administered by mouth, but this destruction of inosite has usually been ascribed to the action of the intestinal flora Recently, however, Greenwald and Weiss[3] of the Harriman Research Laboratory at the Roosevelt Hospital, New York, have tested the fate of inosite in animals rendered diabetic with phlorizin The results indicate that inosite may be converted into glucose in the living organism, though the process is slow and incomplete This instance of the somewhat remarkable chemical transformation of a benzene derivative into a sugar in the body does not give any new hope, however, to those who would endow inosite with some special pharmacologic or therapeutic potency

AN APPEAL FOR BELGIAN AND FRENCH PHYSICIANS

In The Journal for July 21 and August 25 Dr W W Keen appealed for contributions to be used to rehabilitate the physicians of Belgium and northern France, particularly in the regions from which the Germans have been driven, and which now are being reinhabited and restored Up to the present time, Dr Keen writes, his appeals have not met with an encouraging response This may be due to the enormous and continuous demands on every one because we ourselves are now involved in the war Dr Keen suggests that there should be no delay, that funds are sadly needed now to secure office furniture, instruments, appliances, and other medical necessities Houses are already being built, and people are gathering in villages and towns that have been desolate All this means accidents, sickness and the immediate need of the doctor Without office furniture, without instruments—in fact, without anything except willing heads, hands and feet—the physicians are seriously handicapped in the charitable work they are attempting to do We hope that the response to the appeal will be instantaneous and generous, so that there may be immediate relief to the present depressing situation Dr Keen will acknowledge through The Journal all contributions he may receive He should be addressed at 1729 Chestnut Street, Philadelphia

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[1] Marshall J A. The Composition of Saliva in Relation to the Incidence of Dental Caries Am. Jour Physiol 1917 **43**, 212

[1] The Nutrient Value of Inorganic Salts of Lime and Phosphoric Acid editorial The Journal A M A. Aug 15 1914 p 581 Phytin—Fortossan Propaganda, Jan 30 1915, p 456 Inosite as a Food, Miscellany Sept. 16, 1916 p 900

[2] For the literature see Anderson R J Jour Biol. Chem 1916 **25**, 391

[3] Greenwald I and Weiss M L. The Fate of Inosite Administered to Dogs Jour Biol Chem. 1917 **31**, 1 14

Medical Mobilization and the War

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"The purposes of the United States in this war are known to the whole world—to every people to whom the truth has been permitted to come They do not need to be stated again We seek no material advantage of any kind We believe that the intolerable wrongs done in this war by the furious and brutal power of the imperial German government ought to be repaired, but not at the expense of the sovereignty of any people—rather a vindication of the sovereignty both of those that are weak and those that are strong"

MEDICAL MILITARY INFORMATION FOR PHYSICIANS

The pamphlets listed below will be sent on receipt of a self-addressed envelope and the postage stated

1 The Medical Officer of the Army, by Lieut -Col William M Bispham, M C, U S Army, including also articles by Lieut.-Col Robert E Noble, M C., U S Army, Col T H Goodwin, C M G, D S O, and several supplements 82 pages, 6 cents

2 What the Civilian Physician Called to Active Service With the Army Should Know, by Lieut -Col William J H Lyster, M. C, U S Army 16 pages, 2 cents

3 G O 66 and Circular No 2, Rules for the Examination of Recruits 2 cents

4 Bulletin VII Army Service Schools General Information for Officers Entering Service in Medical Reserve Corps 2 cents

5 Mode of Infection, Means of Prevention and Specific Treatment of Epidemic Meningitis, by Simon Flexner, M D 2 cents

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Medical Students and Hospital Interns May Join the Enlisted Reserve Corps and Be Discharged by Local Board from Service in the National Army

The Provost Marshal General has sent the following to the governors of all states

The President prescribes the following Supplemental Regulations governing the execution of the selective service law

First. Hospital interns who are graduates of well-recognized medical schools or medical students in their fourth, third, or second year in any well-recognized medical school who have not been called by a local board may enlist in the Enlisted Reserve Corps provided for by Section 55 of the National Defense Act under regulations to be issued by the Surgeon-General, and if they are thereafter called by a local board they may be discharged on proper claim presented on the ground that they are in the military service of the United States

Second A hospital intern who is a graduate of a well-recognized medical school or a medical student in his fourth, third, or second year in any well-recognized medical school, who has been called by a local board and physically examined and accepted and by or in behalf of whom no claim for exemption or discharge is pending, and who has not been ordered to military duty, may apply to the Surgeon-General of the Army to be ordered to report at once to a local board for military duty and thus be inducted into the military service of the United States, immediately thereupon to be discharged from the National Army for the purpose of enlisting in the Enlisted Reserve Corps of the Medical Department. With every such request must be inclosed a copy of the order of the local board calling him to report for physical examination (Form 103), affidavit evidence of the status of the applicant as a medical student or intern and an engagement to enlist in the Enlisted Reserve Corps of the Medical Department.

On receipt of such application with the named inclosures the Surgeon-General will forward the case to the Adjutant-General with his recommendations Thereupon the Adjutant-General may issue an order to such intern or medical student to report to his local board for military duty on a specified date, in person or by mail or telegraph, as seems most desirable This order may issue regardless of the person's order of liability for military service From and after the date so specified such person shall be in the military service of the United States He shall not be sent by the local board to a mobilization camp, but shall remain awaiting the orders of the Adjutant-General of the Army The Adjutant-General may forthwith issue an order discharging such person from the military service for the convenience of the Government

Three official copies of the discharge order should be sent at once by the Adjutant-General to the local board On receipt of these orders the local board should enter the name of the man discharged on Form 164A and forward Form 164A, together with one of the certified copies of the order of discharge, to the mobilization camp to which it furnishes men. The authorities at the mobilization camp will make the necessary entries to complete Form 164A, and will thereupon give the local board credit on its net quota for one drafted man

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British Hospital Ship in Canal Zone

A British hospital ship carrying several hundred wounded men from New Zealand to England recently passed through the Isthmian Canal, and a magnificent reception was given them by the people of Colon during their stay of two days at that port.

Osler's Son Dies from Wounds

Second Lieut Edward Osler, R. A, only son of Sir William Osler, died in England, August 31 He was wounded recently while on active duty in France, and had been taken to England for treatment

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NEWS OF THE TRAINING CAMPS

Experiences of a Rookie on His First Day at Fort Benjamin Harrison, Indiana

The medical officers' training camp at Fort Benjamin Harrison has been in active running order since June 1, 1917, and has been growing like the proverbial Topsy from that date till the present time The total number of undergraduate and graduate student officers is now approximately 1,400, most of whom are members of the Medical Reserve Corps There are, however, numerous National Guardsmen among the number, and a few men who have passed their preliminary examinations for the regular army and are taking the same course as the others in order to qualify for their commissions

The medical rookie immediately realizes that he is here for business His first adventure is usually a mile walk from a small country station to the camp If he has been unlucky enough to arrive on an early train to which no dining car is attached he is apt to make for a small refreshment stand just outside the station, only to be held up by a firm but politely smiling sentry, who informs him that the joint is run by a bunch of hold-up men and that no soldiers are allowed to patronize it. Disappointed but hopeful, he grasps his suitcase and sets his face campward There will be breakfast awaiting him there beyond a doubt, it is only 7 15 a m

On arrival within the line of wooden barracks he soon realizes that he has not lost his way, because he is greeted with the cheery salutation of "Hello Doc" from scattered groups of bronzed veterans From others more waggishly inclined come cries of "Where's your orderly, Doc?" "Did you bring your side-arms?" "How about those spurs, Doc?"

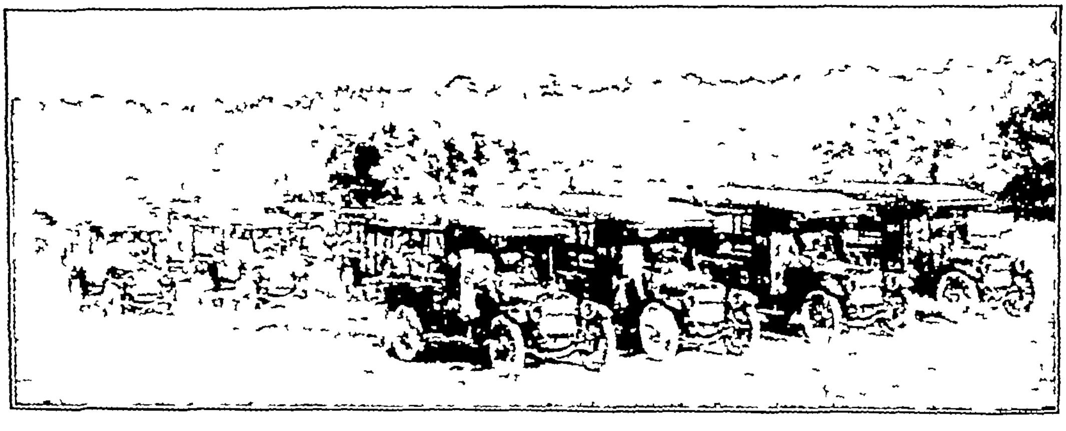
From this breezy welcome he forms two conclusions, first that he is among friends, and second that there must be something unusual about his personal appearance So being a trained observer he soon decides that his spotless officers' serge and cap are at fault, and makes a mental note to remedy the condition at the first opportunity

Having found the Adjutant's Office he shows his War Department telegram for purposes of identification, dictates his personal history to a sergeant, and is assigned to quarters Right here it should be said that this official telegram is the most essential part of any officers' equipment If he becomes separated from this he may as well give up hope of ever getting any pay or consideration of any kind.

His quarters are found to consist of a space 5 feet wide by 8 feet long in a wooden barracks As his baggage has not arrived he moves round the barracks making the acquaintance of his company mates On inquiring timidly as to the chances of getting a little breakfast he finds that this function is already a thing of the past, and that the cooks are preparing for dinner He therefore resigns himself to starvation and the tedium of waiting In due course of time his baggage arrives by army mule team and he has the privilege of acting as his own porter between the A-G's office (Adjutant-General) and the barracks With feverish haste he tears open his army locker and doffs the spotless serge and cap in favor of cotton breeches O D wool shirt and campaign hat

Attired then like a veteran he sallies forth to inspect his surroundings and get some idea of the schedule ahead of him He finds the general plan of the camp very simple Each company has two wooden barracks, one of which is partitioned at one end in order to form a small executive office for the instructors in charge The barracks are approximately 90 feet long by 20 feet wide and are arranged to house from forty to fifty men each Each company also has its own mess hall a building of similar construction, which is also partitioned at one end so as to form a kitchen and pantry Finally each company is supposed to have its own latrine, though lack of construction materials has delayed the construction of some of these units They are supplied with water-closets, running water and excellent shower baths, with hot and cold water and concrete floors

The schedule of the recruit s first day is of necessity somewhat casual, much of it being spent in getting settled and learning the way about The few necessary supplies which he may have overlooked in his packing are easily found at the quartermaster s store where all manner of military equipment may be secured at the most reasonable of prices The morning, therefore is chiefly occupied with these minor errands and is wound up by a talk from one of the company instructors—usually a National Guardsman who has seen service on the border—covering the subjects of camp customs, uniforms, salutes, and hours for rising, eating and retiring The noon meal, so eagerly anticipated, is delayed an hour or so because the company mess has not as yet been started and it is therefore necessary to borrow the hospitality of one of the older companies and to wait until their meal is over and the tables reset. In the afternoon some preliminary drill is tried by those of the company who have arrived, and the rest of the time is given over to the business of getting settled The thought of roll call at 5 30 a m is sufficient to send most men to bed at a very early hour, usually an hour or more before the official time for "lights out" (10 p m)



Ambulances in Review at Fort Oglethorpe

Our medical rookie therefore, may be left to enjoy an untroubled repose Having by special request of the C O discarded all the insignia of rank, and by his action assumed the status of a cadet for the instruction period, he retires to his rest with a feeling that he is now to have a real chance of getting at the work for which he has—possibly at considerable personal sacrifice—volunteered his services

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Fort Oglethorpe

The week of August 20 was one of the most eventful weeks, since the organizing of this training camp It marked the completion of the first course and over 400 medical officers graduated and were sent to camps Dix, Lee, Mead, Wheeler, Gordan, Jackson, Hancock, etc.

VISITORS OF THE WEEK

Colonel Goodwin of the British Medical Service, Colonel Dercle of the French Medical Staff, Colonels Munson and Lagarde of the Surgeon-General's Office, Major Bloodgood of Johns Hopkins University and Prof Alonzo Taylor of the Bureau of Conservation of Food were among the distinguished visitors and speakers who visited the camp during the week Col Henry Page, commandant, arranged the greatest review of medical officers and sanitary troops ever held in the history of the United States, in honor of the officers above mentioned Colonel Dercle stated that had he not witnessed it he would not have believed that men could have been trained so well in so short a period of time Colonel Goodwin, who has been connected with the British General Staff, and under whose direction hundreds, if not thousands, of medical officers have been trained, stated that he had never witnessed anything so impressive and had never seen such efficiency in medical troops who had been trained for six months or more as was shown by the review of men who had been in training for less than three months He congratulated the commandant and his staff of instructors for the magnificent way in which their untiring efforts had produced these results

THE REVIEW

The troops were led by two battalions of medical officers, consisting of 1 400 men under the command of Majors Derby and Boyd these were followed by regimental sanitary detachments, field hospital units and ambulance companies fully equipped and the National Guard sanitary detachment. There were over 5 000 men in the line, which took over an hour to pass the reviewing officer

At the conclusion of the review there was a demonstration of the method of establishing a regimental aid and ambulance dressing station, and in the setting up of a field hospital A demonstration was then given of the way in which the medical personnel evacuated a battlefield of the wounded following an engagement, the various first aid methods employed, and to how great an extent the ingenuity of the individual man is brought out in the devising and the utilizing of what he has in immobilizing the injured parts The method of transporting the wounded to the first aid station was then shown, how the litter bearers transport wounded to the waiting ambulance, thence to the dressing station, where dressings were reapplied, if necessary, and how finally the wounded were transported by other ambulances to the field hospital

SPECIAL LECTURES

Colonel Dercle gave a very interesting talk during the week on the methods of handling the sick and wounded of the French army Colonel Goodwin gave a series of three lectures on the British Medical Service and his experiences during retreat from Mons to the Marne. His simplicity and whole heartedness quite won the hearts of the entire camp Colonel Lagarde, who is one of our greatest authorities on gunshot wounds, gave a series of five most instructive and interesting lectures on that subject. Prof Alonzo E Taylor gave a brilliant talk and brought out the necessity of all the people of this country aiding in the conservation of food stuffs

PERSONAL NEWS

Major Raymond C Turck, adjutant of the camp, has been appointed chief sanitary inspector at Camp Wheeler, Ga His duties have been taken up by Capt. Walter Weiser, who will act as adjutant for the next camp Capt. Damon Pfeiffer has been appointed assistant adjutant.

Major William Pepper has been visiting his family in Philadelphia for the past ten days

Major John E Boyd has been appointed major of the First attalion of student officers

Mrs Richard Derby, formerly Ethel Roosevelt, has been iting her husband, Major Richard Derby, who is in comand of the Second Student's Battalion

Col Henry Page, commandant, entertained at dinner Saturday evening at the Chattanooga Country Club, his guests were Colonels Goodwin, Dercle, Munson, Lagarde and Prof Alonzo Taylor

The following is the tentative list of instructors for the next camp captains, Walter R Weiser, Damon B Pfeiffer, Davis W Parker, majors, William Pepper, Richard Derby, John E Boyd, first lieutenants, James Burnie Griffin, George M Piersol, Albert McConnaghy, Gilbert W Brehm and Russel Jones

JUNIOR INSTRUCTORS

Captains, Blase Cole, Edward J D Beardsley, first lieutenants, Newdegate M Owensby, Theodore Le Boutillier, Robert E Seibel, William Wilmerding and William H McLain.

Orders to Officers of the Medical Corps

Officers of M C to Camp Dix, Wrightstown, N J, 78th Division, for duty Lieut Cols George M Ekwurzel and John W Hanner

Officers of M C to Camp Travis, Fort Sam Houston, Texas, 90th Division, for duty Lieut Cols Robert H Person and Paul S Halloran

First Lieut. Frederick E Thode, M C, to Fort Clark, Texas, for duty as C O, Field Hospital Co No 30

First lieutenants of M C to stations as follows to command ambulance companies named Roy M Fortier to Fort Clark, Texas, No 28 Harvard C Moore to Fort Clark, Texas, No 29, Charles W Riley to Fort Clark, Texas, No 30

Col Charles Lynch, M C, to Base Hospital No 2, El Paso, for duty

Lieut. Col Patrick H McAndrew, M C, at Fort Bliss, to Fort William H Seward, Alaska, for duty

Lieut Col Frank W Weed, M C, to Camp Funston, Fort Riley, Kan, 89th Division, as sanitary inspector

Officers of M C, to Camp Pike, Little Rock, Ark, 87th Division, for duty Lieut Col Robert M Thornburgh, chief surgeon, Major Charles E Freeman, sanitary inspector

Lieutenant colonels of Medical Corps to Camp Sherman, Chillicothe, Ohio, 83d Division, duty Samuel J Morris, as sanitary inspector, Wallace DeWitt, as chief surgeon

Lieut Col Robert M Blanchard, M C, to Camp Shelby, Hattiesburg, Miss, 38th Division, duty as chief surgeon

Officers of M C to Camp Lee, Petersburg, Va, 80th Division, duty Lieut Col Charles E Marrow as *chief surgeon, Major Henry P* Carter as sanitary inspector

Officers of M C to Camp Lewis, American Lake, Wash., 91st Division duty Lieut Col Lloyd L Smith as sanitary inspector

Major Robert H Pierson, M C, to Camp Travis, Fort Sam Houston, Texas, for duty as division sanitary inspector

Majors of M C to camps opposite their names for duty as division sanitary inspectors, Nat Army John W Hanner, Camp Devens Ayer, Mass, William A Powell, Camp Dix, Wrightstown, N J

Major Earl H Bruns, M C, to Washington for duty

Major Frank W Weed, M C, to Camp Funston, Fort Filey, as division sanitary inspector, Nat. Army

Col. Page and Staff of Instructors at Medical Officers' Training Camp Attending Review at Fort Oglethorpe

Officers of M. C to Camp Upton, Yaphank, Long Island, N Y, 77th Division, for duty Lieut. Cols. Charles R. Reynolds and Major Alvin W Schoenleber

Officers of M C to Camp Gordon, Atlanta, Ga, 82d Division, for duty Lieut Col Conrad E Koerper and Major William T Cade, Jr

The following lieutenant colonels, Med Corps, will proceed to the places below named for duty as chief surgeons of their divisions Craig R. Snyder to Camp McClellan, Anniston, Ala, 29th Div, Louis C Duncan to Camp Wheeler, Macon, Ga, 31st Div, Levy M. Hathaway to Camp Logan, Houston, Texas, 33d Div, Jacob M Coffin to Camp Cody, Deming, N M, 34th Div, Wilson T Davidson to Camp Doniphan, Fort Sill, Okla, 35th Div, William M Smart to Camp Beauregard, Alexandria, La, 39th Div, Philip W Huntington to Camp Meade, Annapolis Junction, Md, 79th Div, James M Phalen to Camp Grant, Rockford, Ill, 86th Div, John L Shepard to Camp Funston, Fort Riley, Kan, *89th Div, Orville G Brown to Camp* Fremont, Palo Alto, Calif, 41st Div

Officers of M C to Camp Taylor, Louisville, Ky, 84th Division, for duty Lieut Col John H Allen and Major Luther R Poust

Lieut Col Llewellyn P Williamson, M C, to duty at Camp Devens, Ayer, Mass.

Major Ernest G Bingham, M C, is designated C O, medical officers' training camp, at Fort Des Moines.

Major Guy V Rukke, M C, Plattsburg, N Y, to Fort Porter, N Y, assuming command of Base Hospital No 2

Capt. Shelley U Marietta, M C, to Fort Clark, Texas, for duty as C O, Field Hospital Co No 28

Capt George B Lake, M C, Fort Clark, Texas, to study as C O, Field Hospital Co No 29

Capt Hiram A. Phillips, M C, to Detroit, Mich, assuming command of Base Hospital No 36

Capt Harry R Beery, M C, to Indianapolis, Ind, assuming command of Base Hospital No 32

Officers of M C to the camps indicated opposite their names for duty as division sanitary inspectors, Nat. Army Major Howard H Baily, Camp Rockford, Ill, Major Charles E Freeman, Camp Pike, Little Rock, Ark, Major Philip W Huntington, Camp Meade, Annapolis Junction, Md, Major Samuel J Morris, Camp Sherman, Chillocothe Ohio, Major Lloyd L Smith, Camp Lewis, American Lake, Wash, Major Thomas J Leary, Colon, Camp Jackson, Columbia, S C, Capt Guy L Qualls, Camp Custer, Battle Creek, Mich

Captains of M. C to duty at camps named as division sanitary inspectors, Nat Army William T Cade, Jr, Camp Gordon, Atlanta, Ga., Henry P Carter, Camp Lee, Petersburg, Va, Clarence E Fonk, Camp Dodge, Des Moines, Iowa, Luther R. Poust, Camp Taylor, Louisville, Ky; Alvin W Schoenleber, Camp Upton, Yaphank, N Y (August 22, Ward D), inspector, Major Peter C Field as chief surgeon

Officers of M C to duty, Camp Dodge, Des Moines, Iowa, 88th Division Lieut. Col Jay R Shook as chief surgeon, Major Clarence E Fronk as sanitary inspector

Officers of M C to Camp Custer, Battle Creek, Mich, 85th Division, for duty Lieut Cols. William A Powell as sanitary inspector, Cosam J Bartlett as chief surgeon

Lieutenant colonels of M C to recruit depot specified after his name for duty Powell C Fauntleroy, Fort McDowell, Calif, Joseph T Clarke, Jefferson Barracks, Mo, Allen M Smith, Fort Logan, Colo, Francis M C Usher, Fort Slocum, N Y

Lieut. Col George A Skinner, M C, from Nogales, Ariz., to San Antonio Base Hospital 1, for duty

Officers of M C to Camp Devens, Ayer, Mass Seventy Sixth Division, for duty *Major Joseph L Siner as sanitary inspector*, Major Llewellyn P Williamson as chief surgeon

Capt William K. Bartlett, M C, to Walter Reed General Hospital, Takoma Park, D C, treatment.

Capt. William Denton, M C, to station and duty at Fort Ethan Allen, Vt.

The following lieutenant colonels M C to duty as chief surgeons at camps named Perry L. Boyer to Camp MacArthur, Waco Texas, Thirty Second Division Raymond F Metcalfe to Camp Bowie, Fort Worth Texas Thirty Sixth Division Kent Nelson to Camp Jackson, Columbia S C, Eighty First Division Alexander Murray to Camp Kearney Linda Vista Calif, Fortieth Division, Major Arthur M Whaley to Camp Sevier, Greenville, S C., Thirtieth Division, as chief surgeon.

Orders to Officers of the Sanitary Corps

Capt John F Krauser Sanitary Corps, to duty at Fort Mason, S F, Calif

First Lieut Harvard D Moyer, Sanitary Corps, to duty at Field Medical Supply Depot Washington

First Lieut. Daniel Millen Sanitary Corps, to Camp Sevier, Greenville S C as medical supply officer of division and property officer of base hospital at Camp Sevier

First Lieut Gustave Fonteyne Sanitary Corps, to Camp Green Charlotte N C as medical supply officer of the division and property officer of base hospital

First Lieut Patrick Haughey Sanitary Corps, to Camp Dix, Wrightstown N J as medical supply officer of the division and property officer of the base hospital at Camp Dix

Major James Ten Broeck Bowels, S C, to duty at Washington

Orders to Officers of the Medical Reserve Corps

ALABAMA

To Fort Ethan Allen Vt as drillmaster and instructor for hospital corps Lieut G C Kilpatrick, Irvington

ARIZONA

To report by telegraph to the commanding general, Lieut Sidney C. Williams Chin Lee

ARKANSAS

To Camp Lewis American Lake, Wash, as roentgenologist, Lieut F E. Diemer Hot Springs

To Camp Pike Little Rock to duty at base hospital, H W Graves Elm Springs S J Fuller Little Rock I S Butler Marshall J S Jenkins Pine Bluff and W K Read Texarkana

To Fort Oglethorpe for a course of instruction, Lieut. Robert E. Weaver Hope.

CALIFORNIA

To Camp Fremont Palo Alto Capt Shadworth O Beasley, San Francisco for duty in connection with camp laboratory, Lieut. R L. Rierson Oakland

To Camp Kearney Linda Vista for duty Lieut Sylvan L. Haas, San Francisco

To Jefferson Barracks Mo for duty, Lieut Caro W Lippman San Francisco

To Letterman Hospital S F for duty Lieut C L. Tranter San Francisco

To command Base Hospital No 34 Philadelphia Capt. R G DeVoe Fort McDowell.

To report by telegraph to commanding general Western Department for assignment to duty, Capts Alonzo DeM Snyder Corning Charles B Hare San Jose Lieut. William Friedberger, French Camp

To University of California as cardiovascular examiner Lieut. William J Kerr Sebastopol

CANAL ZONE

To Camp Jackson Columbia S C Eighty First Division Major T J Leary Cristobal

To Camp Meade Annapolis Junction Md with Seventy Ninth Division Major G L. Qualles Ancon.

To Camp Sevier Greenville S C for duty in connection with camp laboratory, Lieut. D O Smith Culebra.

To command Base Hospital No 24 Tulane University, New Orleans Capt. C E. McBrayer Cristobal

COLORADO

To Denver for the purpose of enlisting the personnel of Red Cross Ambulance Co No 30 Capt. Thomas H. Hopkins Denver

To Schofield Barracks H T Capt. Arthur J Markley, Denver

CONNECTICUT

To Fort Ethan Allen Vt as drillmaster and instructor for hospital corps Lieut. M H Griswold Kensington

DISTRICT OF COLUMBIA

To Camp Hancock Augusta, Ga, for duty, Lieut. Eugene Clarence Rice, Jr Washington

To Camp Meade Annapolis Junction Md, to duty at base hospital Lieuts George Von P Davis, as roentgenologist W Van Sweringen Washington

To Fort Clark Texas with Ambulance Co No 30 Lieut. William H. Cade Jr, Washington

To Fort Oglethorpe for a course of instruction Lieut. William O Wetmore Washington.

FLORIDA

To Camp Dix Wrightstown N J, Lieut. William A. Clark Pine Barren.

To Fort Oglethorpe for a course of instruction Lieut. Walter J Baker, Loughridge.

GEORGIA

To Atlanta Ga for assignment to Red Cross Ambulance Co No 20 Lieuts. L. P Daly and E D Shanks, Atlanta E. W Allen Milledgeville Spencer A Kirkland, Zirkle

To Camp Grant, Rockford, Ill, for duty, Lieut James J Beaton, Waycross

To Camp Wheeler, Macon, for duty, Lieut Wilborn A Upchurch, Atlanta

To Fort Gordon Atlanta, to duty at base hospital, Capt H H Malone Lieuts T I Davis, Augusta, R E Foster, Carrollton, B C Bird Colquitt F Bird, Valdosta

To Fort Oglethorpe for a course of instruction, Lieut De Lamar Turner, Milledgeville

ILLINOIS

To Camp Dodge Des Moines, Iowa, as roentgenologist, Capts W G Alexander Evanston to duty at base hospital, E O G Framing, Galesburg Lieuts W C Bisson, Charleston, W H Byford, A W K Downes Chicago C M Coen Cornell

To Camp Grant Rockford, Ill, to duty at base hospital, Capts J Burry A R Craig W Cuthbertson, Lieuts H G Champlin, C A Jacobson Chicago C C Craig, Mount Carmel

To Camp Hancock Augusta, Ga for duty with base hospital, Lieut J F Miller, Palmer

To Fort Benjamin Harrison for a course of instruction, Lieut George N Pratt, Chicago

To Fort Ethan Allen Vt as drillmaster and instructor for hospital corps Lieut M L Puffer, Downers Grove

To Jefferson Barracks Mo for duty, Lieut Robert B Jack, Okawville.

INDIANA

To Camp Bowie Fort Worth, Texas, for duty, Capt Joseph K Worthington, Indianapolis

To Camp McClellan Anniston, Ala, Lieut Arthur F Weyerbacker, Indianapolis.

To Fort Benjamin Harrison for a course of instruction, Lieut E. J Dubois Indianapolis

To Fort Ethan Allen Vt as drillmaster and instructor for hospital corps, Lieut O A Newhouse Montezuma.

IOWA

To Camp Cody N M for duty in connection with laboratory work Lieut Theodore W Kemmerer, Davenport

To Camp Dodge Des Moines in connection with venereal diseases, Lieut A H Konigmache Missouri Valley

To Camp Lee Petersburg, Va, as roentgenologist, Capt. E. A. Merritt Council Bluffs

To Camp Travis Fort Sam Houston, Texas, to duty at base hospital, Capts B R. Johnston Cedar Rapids L. B Carson, Maquoketa for duty Lieut. Henry E. Kleinberg Redfield

To Fort Ethan Allen Vt for duty, Lieut. R E Robinson, Waverly

KANSAS

To Camp Funston, Fort Riley Kan, to duty at base hospital, Capt. P Christmann, Parsons, Lieuts J B Brickell, Americus J Welch Herington M Newlon, Lincoln I B Chadwick Tyro in connection with venereal diseases Lieut R W Hissem Wichita

To Camp Taylor Louisville, Ky, to duty at base hospital, Lieut W H. Neel Wellington.

KENTUCKY

To Camp Logan Houston Texas, as chief of surgical service, Capt. John H Blackburn, Bowling Green

To Camp Taylor Louisville Ky, Lieuts William H Neel Bowling Green Calude Wilson Greenville James A Grider Smith Grove, to duty at base hospital C. B Willmott, Lexington, E T Gallagher Somerset H L. McLean, Willmore in connection with venereal diseases V N Meddis Louisville.

To Fort Benjamin Harrison for a course of instruction Lieut D C Donan Morganfield

To Fort Oglethorpe for a course of instruction, Lieuts. John W Stephenson Ashland J H Pritchett Louisville

To command Base Hospital No 31 Youngstown, Ohio, Capt A. E Schlanzer Fort Thomas.

LOUISIANA

To New Orleans for duty, Major I Dyer New Orleans

MAINE

To Camp Devens Ayer, Mass, in connection with venereal diseases, Capt G A Pudor Portland

To Camp Funston Fort Riley, Kan as roentgenologist, Lieut E S Cummings Lewistown

To report in person to the commanding general, Southern Department, for duty Capt Edson E. Goodrich Waterville

MARYLAND

To Camp Doniphan Fort Sill Okla., as roentgenologist, Lieut F N Hoffmeier Hagerstown

To Camp Meade Annapolis Junction Md, to duty at base hospital Lieuts E. F Gott A Shelley H N Sisco Baltimore Winter R. Frantz Cumberland Thomas J Coonan, Westminster

To Fort Bayard N M for duty Lieut Cranfield H. Douthirt Baltimore.

MASSACHUSETTS

To Camp Devens Ayer Mass to duty at base hospital, Capts C O Kepler Boston E A. Darling Cambridge Lieuts W G Stickney Beverly E S Winslow, Easthampton Robert L Jones Lowell, J M Tracy Springfield

To Camp Green Charlotte, N C, as roentgenologist, Lieut. H E. Carney Boston

To Camp Hancock Augusta, Ga., as roentgenologist, Lieut. A. J Horrigan, Springfield.

To Camp MacArthur Waco, Texas for duty in connection with laboratory work Lieut. Leon S Medalia, Boston

To Camp Shelby, Hattiesburg, Miss, for duty, Lieut William P Boardman, Boston

To Fort Clark, Texas, with Field Hospital Co No 28, Lieut. John F McDonald, North Adams

To Fort Ethan Allen, Vt, for duty, Capt H E Sears, Beverly, Lieut R C Norris, Methuen

To Fort Sill, Okla, for a course of instruction at the Gas School, Lieut N W Faxon, Stoughton

MICHIGAN

To Camp Custer, Battle Creek, Mich, to duty at base hospital, Capt W E Chapman, Cheboygan, Lieuts W A Giffin, Deckerville, L N Tupper, Redford, *for duty, Spencer Van Barnum, Coloma*, in connection with venereal diseases, J R Coryell, Grand Rapids

To Detroit for the purpose of enlisting the personnel of Red Cross Ambulance Co No 28, Capt. Griffith A Thomas, Detroit

To Flint, for the purpose of enlisting the personnel of Red Cross Ambulance Co No 42, Capt. Floyd A Roberts, Flint

To Memphis Tenn, for the purpose of enlisting the personnel of Red Cross Ambulance Co No 45, Capt Walter R T Sharpe, Romeo

MINNESOTA

To Fort Sill Okla, for a course of instruction at the Gas School, Capt J C Sessions, Minneapolis

MISSISSIPPI

To Camp Logan, Houston, Texas, for duty in connection with camp laboratory, Lieut. E R Gordon, McComb

To Camp Shelby, Hattiesburg, to base *hospital as chief of the surgical* service, Capts Walter W Crawford, *as roentgenologist*, W R Bethea, Hattiesburg

To Camp Travis, Fort Sam Houston, Texas, to duty at base hospital, Lieut C C Buchanan, Laurel

MISSOURI

To Camp Cody, N M, for duty in connection with laboratory work, Lieut Frederick A Hecker, Kansas City

To Camp Dodge, Fort Riley, Kan, in connection with venereal diseases, Capt John Butler, Hawk Point

To Camp Funston, Kan in connection with venereal diseases, Capt W L McBride, Kansas City

To Camp Green, Charlotte, N C, for duty, Capt. James B Clark, Springfield

To Camp Pike, Little Rock, Ark, in connection with venereal diseases, Lieut H McC Young, *St. Louis*

To Camp Travis, Fort Sam Houston, Texas, in connection with venereal diseases, Capt H M Moore, St Louis

To Fort Clark Texas, with Field Hospital Co No 29, Lieut. Granvil L Kerley, Kansas City

To Fort Ethan Allen, Vt, as drillmaster and instructor for hospital corps, Lieut. N G Hawley, St Louis

To Kansas City, Mo, for the purpose of enlisting the personnel of Red Cross Ambulance Co No 24, Capt. Ernest W Cavaness, Kansas City

To report *in person to the commanding* general, Western Department, for duty, Capt Frank D Dickson, Kansas City

NEBRASKA

To Camp MacArthur, Waco, Texas, for duty in connection with laboratory work, Lieut. Aldis A Johnson, Omaha

To Fort Riley, for instruction, Lieut Samuel Earl Metheny, Cairo

NEW HAMPSHIRE

To Camp Pike Little Rock, Ark, as roentgenologist, Lieut A G Straw, Manchester

To Camp Wheeler, Macon, Ga, as *roentgenologist*, Lieut A F Wheat, Manchester

NEW JERSEY

To Camp Dix, Wrightstown, N J, to duty at base hospital, Capts J N Teeter, Englewood, M J Synott, *Montclair Lieuts F R Corson* Atlantic City, B A *Furman*, Newark, W A Clark, Trenton L E Poole, West Hoboken, as roentgenologist, J B Edwards, Leonia

To Camp Fremont, Palo Alto, Calif, as roentgenologist, Lieut J L. Gariss, Trenton

To Camp Kearney, Linda Vista, *Calif*, as *roentgenologist*, Lieut H B *Dean*, Audubon

To Camp Sheridan, Montgomery, Ala, for duty in connection with laboratory work Lieut Harrison S Martland Newark

To Fort Benjamin Harrison, for a course of *instruction, Lieut* Ambrose F Dowd, *Newark*

To Fort Oglethorpe, for a course of instruction, Lieuts Martin W Curran, Chatsworth, A L Ellis, Metuchen

NEW YORK

To Allentown, Pa for duty, Lieut. W G Phillips, Jr, Brooklyn

To Camp Funston, Fort Riley, Kan, to duty at base hospital, Lieut R J Miller, New York City

To Camp Gordon Atlanta, Ga, to duty at base hospital, Lieut. C E. Wills, New York City

To Camp Hancock, Augusta, Ga, for duty, Capt Joseph L Donhauser, Albany

To Camp Logan, Houston, Texas, for duty in connection with camp laboratory, Capt T H Dexter, Brooklyn, as roentgenologist, Lieut. S F Weitzner, New York City

To Camp McClellan, Anniston, Ala, for duty in connection with camp laboratory, Lieut H E Meleny, New York City

To Camp Meade, Annapolis *Junction*, in connection with venereal diseases, Lieut C. M Williams, New York City

To Camp Sevier, Greenville, S C, Capt Abram S Clark, New York City, as roentgenologist, Lieut C W Woodall, Schenectady, for duty in connection with camp laboratory, Lieut T W Jenkins, Albany

To Camp Travis, Fort Sam Houston, Texas, as roentgenolgist, Lieut D S Childs, Syracuse

To Camp Upton, Yaphank, L I, N Y, to duty at base hospital, Capt F J Cox, Albany, Lieuts T L. Barnum Kingston, and A J Anderson, Long Island City, for duty, Lieuts William J Wansboro, Albany, and Russell LaF Cecil, New York City

To Camp Wadsworth, Spartanburg, S C, as roentgenologist, Capt U S Kann, Binghamton

To Fort Adams, R I, to examine troops for tuberculosis, Lieuts E L Draper and Clinton B Hawn, Albany

To Fort Benjamin Harrison, for a course of instruction, Lieuts Reuben S Simpson, Lyons, and S Erdman, New York City

To Fort Ethan Allen, Vt, for duty, Capt C B J Mittelstaedt, Fisher's Island, Lieuts F Crounse, Albany, H E McGarvey, Bronxville, P A Reque, *Brooklyn*, J A Bennett, Elmira, I W Livermore, Gowanda, A L Tinkess, La Fargeville, R S Nelson and W H J O Brien, New York City G E Stevenson, Penn Yann, G J Ganow, Port Dickinson, D Ramsey, Smithtown Branch, and W H McShane, Troy

To Fort Jay, for duty, Lieut L J Ladinski, New York City

To Fort Oglethorpe, for a course of instruction, Capt *George Draper*, New York City

To Fort Riley, Kan for duty, *Lieut Harry T Lay*, Saranac Lake

To Madison Barracks, New York, Capt Wilson G Wood, Madison Barracks.

To New York, to examine Second Infantry, N Y N G, for tuberculosis, Capt A MacFarlane, Albany

To Rockefeller Institute, New York City, *to report in person to* Major Simon Flexner, for duty as assistant, Capt E F Butler, Yonkers

To Spartanburg, S C, for duty in connection with laboratory work, Lieut Lemuel W Gorham, Albany

To Syracuse, N Y, in connection with enlistments for Red Cross Hospital Unit G, Major E S Van Duyn, Syracuse.

Honorably discharged, Lieut C E Tracy, Castleton

NORTH CAROLINA

To Fort Oglethorpe, with the Red Cross *Ambulance Co No* 31, Capt Charles S Lawrence, Winston Salem, Lieuts William E Brackett, Caroleen, and John T Benbow, East Bend

OHIO

To Allentown, Pa for duty, Lieut. *William* J Jones, Columbus

To Army Medical School Washington, D C, for duty Capt. Charles Goodman, Cleveland, Lieut Thomas R. W Wilson, Bakersville

To Camp Doniphan, Fort Sill, Okla, for duty, Lieut Chelsea A Coleman, Dayton

To Camp Green, Charlotte, N C, for *duty in connection* with camp laboratory, Lieut. J C Placak, Cleveland

To Camp Sherman, Chillicothe, to duty at base hospital, Lieuts G M Logan, Akron, W C Gates, Bucyrus, J W Sheetz, Columbus, and R B *Thompson, Salem*

To Fairfield, and report in person to the commanding officer, Flying School, Aviation Section, for duty as post surgeon, and by letter to the commanding general, Central Department, Capt Courtney P Grover, National Military Home

To Fort Sill, Okla, for a course of *instruction at the Gas School*, Lieut G W Brehm, Columbus

To report by telegraph to commanding general, Southern Department, for duty, Lieut C T Smith, Columbus

To Syracuse, N Y, for duty, Capt. Samuel Hindman, Columbus

OKLAHOMA

To Fort Oglethorpe, for a course of instruction, Major Bertram E Duckwall, Fort Sill

To Fort Riley, for a course of instruction, Capt. W E Harrington, Wakita

To Fort Sill, Okla, for a course of *instruction* at the Gas School, Capt B C Cole, Whitefield

To South San Antonio, Kelly Field, for duty, Lieut Sims D Bevill, Poteau

OREGON

To report by telegraph to commanding general, Western Department, for duty, Lieut. Floyd D Lewis, Silverton

PENNSYLVANIA

To Camp Beauregard, Alexandria, La, for duty, Lieut. Lloyd Thompson, Homestead

To Camp Cody Deming, N M, as *roentgenologist Lieut* L. S Weaver, York

To Camp Custer Battle Creek, Mich, as roentgenologist, Lieut. T L McCullough, Homewood

To Camp Hancock, Augusta, *Ga*, for duty, Lieut. *Frank* P Strome, Scranton

To Camp Jackson Columbia, S C, as roentgenologist, Capt H A Greaves, Philadelphia in connection with venereal diseases, Lieut. E J Braun, Farrel, to duty at base *hospital, Lieuts W D Gates*, Indiana, E T Davies, Old Forge and W Van Korb Philadelphia

To Camp Sheridan, Montgomery, Ala, for duty in connection with laboratory work, Lieut. Charles B Reitz, Allentown

To Camp Sherman, Chillicothe, Ohio, to duty at base *hospital* Lieuts J A. Shaffer, Toysburg, and A. B Shatto, York

To Camp Sevier Greenville, South Carolina, for duty in connection with camp laboratory, Capt A C Woods Philadelphia

To Columbus Barracks, Ohio for duty, Capt Alexander L. Gillars, Pottsville

To Fort Adams R I, to examine troops for tuberculosis Lieut J P *O'Brien Philadelphia*

To Fort Benjamin Harrison, for a course of instruction, Lieut John R. Conover, Philadelphia

To Fort Ethan Allen Vt for duty, Capt W T McConville, Honesdale and Lieut W R Campbell, East Smithfield

To Fort Oglethorpe for a course of instruction, Capt James K M Perrine Pittsburg and Lieut Anthony S Maciejewski, Philadelphia

To Fort Sill, Okla for a course of instruction at the Gas School, Capt T B Appel, Lancaster

To Spartanburg S C for duty Lieut. John D Jungmann, Philadelphia for duty in connection with laboratory work Lieut Robert A Kelly Lansdowne

To Washington for duty with the Council of National Defense, Major Henry D Jump Philadelphia

SOUTH CAROLINA

To Camp Jackson Columbia S C to duty at base hospital Lieuts. E W Barron, Manning and J H Pratt, Ninety Six

To Camp Lee Petersburg Va, to duty at base hospital, Capt W Hope Union

To Fort Ethan Allen Vt for duty Lieut. J D Thomas, Loris

To Fort Oglethorpe for a course of instruction, Lieuts. George Walter, Orangeburg and F M Harvin Pinewood

To Greenville S C for the purpose of enlisting the personnel of Red Cross Ambulance Company No 32, Capt. James E Daniels, Greenville

TENNESSEE

To Camp Sherman Chillicothe Ohio, in connection with venereal diseases, Lieut. C. E. Barnett, Newport.

TEXAS

To Austin Texas for duty, Capt Albert F Beverly, Austin

To Camp MacArthur Waco Texas, Lieut Richart M Fancher, Houston as roentgenologist Lieut E V Powell, Fort Worth

To Camp Travis Fort Sam Houston Texas to duty at base hospital, Lieuts J J Gill Lamasco and B F Gibson Lufkin

To Camp Upton Yaphank Long Island, N Y, to duty at base hospital Lieut E. C Foster Whitt.

To command Base Hospital No 3 (Mount Sinai Hospital), New York, Capt M A. Dailey Presidio

To Fort Clark Texas with Ambulance Company No 29 Lieut Robert K Lowry Hubbard with Field Hospital Company No 30 Lieut Levy S Johnson, Richmond

To Fort Sam Houston for duty, Lieuts A L. Roberts Myra and Joseph A L Wolfe Van Alstyne.

To report by telegraph to commanding general, Southern Department, for duty Lieuts. Jackson S Cooper Dallas, and William H Cooley, Sarita

To South San Antonio Kelly Field for duty, Lieut. Jeffrey C. Michael Houston

UTAH

To Camp Meade Annapolis Junction Md, Lieut. George Von P Davis Salt Lake City

VERMONT

To Camp Dix Wrightstown, N J in connection with venereal diseases Capt W W Townsend, Rutland

To Fort Ethan Allen Vt for duty Lieut. E Bibby, Craftsbury

VIRGINIA

To Camp Lee Petersburg, Va to duty at base hospital Capts. S B Moore, Alexandria E. M Parker Emporia and Joseph W Hope Hampton Lieuts. C M Easter Chincoteague Island P C Riley Markham and I H Goldman Richmond.

To Newport News Va for duty Lieut. Paul J Parker, Hampton

To Richmond Va for instruction in military roentgenology, Lieut R. A Davis Newport News

WASHINGTON

To Camp Fremont Palo Alto Calif for duty in connection with camp laboratory Lieut. P C West, Seattle.

To Camp Lewis American Lake Wash to duty at base hospital, Capt. F P Gardner Seattle Lieuts. P I Carter, Port Townsend E. L. Bickford Seattle W B McNerthney, J S Smeall and H J Whitacre Tacoma.

To Camp MacArthur Waco Texas for duty in connection with laboratory work, Lieut. Harry H Robinson Spokane

WISCONSIN

To Camp Logan Houston Texas, Lieut. Albert G Jenner Milwaukee

To Washington D C in connection with preparation of a pamphlet on Plastic and Oral Surgery of the War Capt R. H. Ivy Milwaukee.

* * *

"The object of this war is to deliver the free peoples of the world from the menace and the actual power of a vast military establishment, controlled by an irresponsible government which having secretly planned to dominate the world, proceeded to carry the plan out without regard either to the sacred obligations of treaty or the long established practices and long cherished principles of international action and honor, which chose its own time for the war, delivered its blow fiercely and suddenly, stopped at no barrier either of law or of mercy swept a whole continent within the tide of blood—not the blood of soldiers only, but the blood of innocent women and children also, and of the helpless poor, and now stands balked but not defeated, the enemy of four-fifths of the world

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST, SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC)

ALABAMA

Personal—Dr Judson D Dowling, Birmingham, has been elected health officer of Jefferson County, succeeding Dr F E Harrington, resigned to reenter the United States service——Dr Burdett L. Arms, chief bacteriologist of the Alabama State Board of Health, Montgomery, has been appointed director of the bacteriologic Laboratories of the Florida State Board of Health, Jacksonville, succeeding Dr Edward G Birge, M R C, U S Army——Dr George A Mershon Fairhope, has been appointed assistant surgeon of the Soldiers' Home, Marshalltown, Iowa——Dr Hawkins D Westmoreland, Huntsville, has been appointed local surgeon for the Southern Railroad, succeeding Dr Felix E. Baldridge, deceased——Major Middleton H Hagood, Brewton, is convalescent after a surgical operation

CALIFORNIA

Typhoid in Modesto—The seventh death in Modesto from typhoid fever since the opening of the epidemic occurred August 19——Frank Holtham has been appointed sanitary inspector of Modesto, and is initiating an active clean-up campaign

Venereal Diseases Controlled—State Health Officer Sawyer has petitioned county supervisors to provide in their annual budget for hospital facilities for the care and isolation of patients suffering from venereal diseases Governor Stevens has appropriated $60,000 from the state war emergency fund for the control of this problem

Will Require Intern Year—The College of Physicians and Surgeons, the medical department of the University of Southern California, Los Angeles, announces that students matriculating in the session of 1918-1919 and thereafter will be required to take a five-year course before obtaining the M D degree, the fifth year to be spent as an intern in a hospital acceptable to the senior faculty, or have its equivalent in other advanced clinical training

CONNECTICUT

Personal.—Dr Simon R. Klein, formerly director of the Norwich research and experimental laboratory, has been appointed assistant superintendent, pathologist and roentgenologist to the Waldheim Park Sanitarium and Polyclinic, Oconomowoc Wis——Dr Jeremiah D Eggleston has been elected president of the board of trustees of the State School for Boys, Meriden

GEORGIA

Personal.—Dr Henry W Terrell, La Grange, has been appointed a member of the state board of medical examiners to succeed the late Dr Francis M Ridley, La Grange.——Dr Clarence M Paine, Atlanta, is reported to be critically ill in a hospital at Rochester, Minn, following a surgical operation

New Officers—The annual meeting of the First Congressional District Medical Society was held in Savannah, August 3 Statesville was selected as the next place of meeting, and the following officers were elected president, Dr Robert L. Miller, Waynesboro, vice presidents, Drs Luther A. De Loach, Glennville, and Antonio J Waring, Savannah

City Discontinues Drug Addict Treatment.—The City Health Department of Atlanta, which has been treating as many as 500 drug addicts every week for the last three months, has ordered that this treatment be discontinued, as many of the addicts, in spite of their promise that they would enter the hospital at Atlanta, which is maintained by the state for this purpose, would go, after receipt of treatment at Atlanta, to other cities, arouse the sympathy of city officials and obtain similar treatment there.

ILLINOIS

Sanitary Personnel Needed—Major-Gen George Bell, Jr , in command of Camp Logan, Houston, Texas, telegraphs to the Secretary of War, August 29, asking that Illinois Field Hospital Nos 2, 3 and 4, and Illinois Ambulance Companies Nos 1, 2, 3 and 4 be ordered to Camp Logan

Tuberculosis Must Be Reported—According to regulations issued by the state department of health, August 30, physicians, health officers, attendants, householders and parents who have knowledge of a known or suspected case of tuberculosis in the state are required to report it to the local health authorities

Drugless Practitioners in Illinois—An official register of drugless practitioners in Illinois, officially referred to as "Other Practitioners," has been issued by the Illinois State Board of Health The list contains the names of 1,513 such practitioners who were licensed prior to July 1, 1917, when the licensing of all practitioners of healing was transferred from the state board of health to the new department of registration and education

Chicago

Besley Unit Addition Leaves Chicago—Nine physicians of Chicago and forty-seven civilians left for the East, September 2, en route for France At the East port they will be met by the twenty Red Cross nurses who left Chicago, August 22——Lieut. J Roscoe Harry, M R C, U S Army, who has been on duty for several months in Chicago, left for France, September 1

Gardner Goes to California—Dr George A Gardner, one of the first of the dispensary physicians connected with the Chicago Tuberculosis Institute, who has been identified with the Stock Yards Dispensary ever since its foundation, and with the first open air school for children, and at Harlowarden camp at Joliet, has accepted a position on the staff of the sanatorium of Dr Pottenger, at Monrovia, Calif

INDIANA

Infantile Paralysis in East Chicago—Seven cases of infantile paralysis, with three deaths, have been reported at East Chicago The first case developed in July It is now believed that the disease is under control

Personal—Drs John E McArdle and Edward J McOscar have been appointed local physicians for the Fort Wayne and Northern Indiana Traction Company——Dr Royal H. Gerard, Crawfordsville, has been elected president of the National Fraternal Congress of America

State Association Meeting—The Indiana State Medical Association will hold its annual meeting in Evansville, under the presidency of Dr John H Oliver, Indianapolis, September 26-28 The sessions will be held in the new Coliseum Dr Edwin Walker is chairman of the committee of arrangements The entertainment provided for the association includes an evening trip on the Ohio River, and a motor trip to New Harmony

MARYLAND

To take Charge of Canadian Hospital—Dr Thomas B Futcher, visiting physician at Johns Hopkins Hospital, and member of the staff of the Medical School, will sail shortly for England, where he will be in charge of the Canadian Military Hospital at Orpington, Kent

Ordered to Camp Meade—Dr Arthur M Shipley, Baltimore, professor of surgery at the University of Maryland, received his commission as chief of the surgical staff of the University of Maryland Base Hospital Unit, has been detached from the unit by order of the War Department, and ordered to report immediately to Camp Meade as chief surgeon and surgical instructor at the camp

Mrs Thayer Dies—Mrs William S Thayer, wife of Dr William S Thayer, Baltimore, died at the home of her niece, Mrs Samuel Shoemaker Murray, at Pikesville, August 29 Mrs Thayer was graduated from Johns Hopkins Training School for Nurses in 1892, the first class of the hospital Sometime later she became superintendent of nurses at the hospital, and was for several years president of the alumnae association. Dr Thayer is now in Russia.

War Against Tuberculosis—The Maryland Council of Defense has appointed a strong committee for the purpose of making an investigation and report on the tuberculosis situation in this state, the present preventive needs of the state and the extraordinary needs due to the war This committee was named in response to the appeal placed before the council by Dr C Hampson Jones and H Wirt Steele, executive secretary of the Maryland Association for the Prevention and Relief of Tuberculosis Prof Joseph S Amos, Johns Hopkins University, is chairman of the committee.

MONTANA

Decrease in Tuberculosis—Superintendent A. F McDonald of the state sanatorium, Galen, reports that the crusade against tuberculosis in Montana is bearing fruit, and that for the first time since its opening, the sanatorium has vacancies for twenty-five patients

Personal—Dr Alfred J Willits, Anaconda, has been appointed temporary chief of staff of St Ann's Hospital——Dr Alfred Blumberg, Butte, is said to have filed a suit in the federal court against Dr Patrick H McCarthy, health officer of Butte, claiming $5,000 damages on account of alleged slander The suit is based on a statement said to have been made by Dr McCarthy at the recent state association meeting to the effect that Dr Blumberg was a German spy

NEW YORK

Dental Ambulances for New York Troops—The preparedness League of American Dentists has been the recipient of a gift of $10,000 from Mrs William B Thompson to equip five dental ambulances for the New York state troops These ambulances will be tendered to the government through the American Red Cross Society The League of American Dentists proposes to equip a large number of dental ambulances for the expeditionary forces

Civil Service Examination for Medical Assistant, District Attorney's Office—The civil service commission of the state of New York announces that a competitive examination will be held for the position of medical assistant, district attorney's office, Kings County Applicants must have been physicians and surgeons for at least ten years, duly licensed to practice medicine in this state The duties of the office include the examination of the dead body and of all the premises where it is found for the purpose of ascertaining all facts which will aid in elucidating the circumstances surrounding the death. The salary is $3,000 Applications must be filed with the civil service commission, Albany, not later than September 26

New York City

Treatment of Venereal Disease in Dispensaries—The board of health has added an amendment to the sanitary code which has as its object the improvement of the standard of service rendered by dispensaries in the treatment of venereal diseases This amendment includes a number of regulations providing for the keeping of proper records, a follow-up system, the discharge of patients, and requires that such dispensaries be open at least three days a week These regulations require that in cases of syphilis, salvarsan or one of its analogues be administered in addition to the use of other approved methods of treatment Microscopic examinations must be made, and in cases of gonorrhea the complement deviation test must be performed Every dispensary treating these diseases must be provided with facilities for urethroscopic and cystoscopic work, and these facilities must be regularly employed by the phsician in attendance.

Columbia War Hospital Renamed—The Columbia University War Hospital, which was established on Columbia Oval in the Bronx, and was accepted as a war hospital by the government some time ago, has been designated as United States Army General Hospital No 1 It is to be one of a series of hospitals where serious cases will be brought when treatment requires such time that the men cannot be kept in the field or other hospitals without clogging the machinery of caring for the wounded The executive committee of the hospitals is composed of Dr Samuel W Lambert, dean of the College of Physicians and Surgeons, Dr John B Squier, Dr William H Bishop, surgeon to the Cumberland Street Hospital of the Department of Charities, Dr Adrian V S Lambert, surgeon to the Presbyterian Hospital, Dr Francis Carter Wood, director of the laboratories of St Luke's Hospital, Frederick A Goetze, treasurer of Columbia University, and Willard V King, president of the Columbia Trust Company

Amendments to Sanitary Code—In order to make certain that all persons recognized by their physicians as being infected with a veneral disease shall be instructed as to the nature of their infection and the measures to be taken to avoid its spread the Sanitary Code has been adopted to read as follows

> It shall be the duty of every physician to furnish and deliver to every person found by such physician to be affected with syphilis or gonorrhea a circular of instruction and advice, issued or approved by the Department of Health of the City of New York and to instruct such person as to the precautions to be taken in order to prevent the communication of the disease to others
>
> No person affected with syphilis or gonorrhea shall, by a negligent act cause contribute to or promote the spread of such disease

Another new addition to the Sanitary Code provides for the regulation of private laboratories by the department of health These regulations provide that hereafter no laboratory offering facilities for the diagnosis of communicable disease shall be conducted or maintained in the city of New York without a permit therefor issued by the board of health or otherwise than in accordance with these regulations It is required that all specimens be properly numbered, that a record be kept showing the date of receipt of each specimen, the name of the physician submitting the specimen, the result of the test and the name of the person to whom the report was sent The regulations require that laboratories be adequately equipped and that approved methods be employed Applications for permits to conduct and maintain such laboratories must be made by those in charge of the laboratory on official blanks furnished by the department of health

OHIO

Cincinnati

Dr Reed's Condition Improving—The many friends of Dr Charles A L Reed, who suffered a cerebral hemorrhage in Atlantic City August 23, will be glad to hear that he is now improving

Personal.—Dr John M Adams was elected Surgeon-General of the Grand Army of the Republic at the annual encampment in Boston August 23——Dr George A. Fackler is reported to be seriously ill at Christ's Hospital

Dr Ravogli Retires.—Dr Augustus Ravogli chief of staff of the dermatologic department of the Cincinnati General Hospital ever since its reorganization, has retired from the staff after a continuous service of twenty years, and has been succeeded by Meyer L. Heidingsfeld

PENNSYLVANIA

Women Interns in Sanatorium.—On account of shortage of men due to war conditions, women interns have been attached to the staff of the State Sanatorium, Mont Alto

Dysentery Epidemic—State health officials are examining into an epidemic of dysentery which has broken out at Amsbry There have been twenty-five cases of the disease, with two deaths

Personal.—Dr Wayne L. Shearer Reading, who was operated on, June 14 at St Joseph's Hospital, has recovered and resumed practice——Dr Adam L. Kotz, Easton, has resigned from the staff of St. Luke's Hospital South Bethlehem and has been appointed pathologist for the Easton Hospital——Dr John L. Mansuy, Ralston, was attacked by a highwayman near Ralston, August 15, and was shot and wounded in the arm

Philadelphia

Women Commissioned in French Army—Drs Marie K. Formad and Laura Hunt have accepted commissions in the French Army, and will join the unit now being organized by women physicians of New York City

Two Ambulances Given University Unit.—Two additional motor ambulances have been given to the University of Pennsylvania Base Hospital No 20, one by Mrs William McLean, in memory of her son who died in June at Fort Oglethorpe, where he was artillery instructor, and one from Mrs Caleb F Fox.

War Hospital Canvass—A campaign to raise $25 000 in West Philadelphia for the Jefferson Base Hospital No 38 was started August 28, when headquarters were opened in the Chevrolet Motor Car Company One hundred thousand circulars will be distributed between the above date and September 14, when the final days' drive will be started

Personal.—Dr James A Babbitt, physical director at Haverford College will have charge of the American Friends' Reconstruction Unit, which leaves shortly for France to engage in reconstruction work under the civilian branch of the American Red Cross Association

VIRGINIA

Ambulance Presented to Richmond—The Jefferson Club formally presented an ambulance to the Richmond Grays Battalion of the First Virginia Infantry The presentation address was made by Mr W H Schwarzchild, president of the club Governor Stewart accepted the gift and presented it to Major J Fulmer Bright, commander of the battalion

Infantile Paralysis—Dr Ennion G Williams, Richmond state health commissioner in a letter to the Norfolk Board of Health, August 22 stated that there have been twenty-two cases of infantile paralysis in Rockingham County, with seven deaths He points out the precautionary steps that should be taken and urges that the cities proceed at once with a vigorous clean-up campaign The city health board of Staunton as a precautionary measure has debarred adults from Rockingham County from visiting Staunton and, August 18, ordered all churches and moving picture houses closed

Base Hospital Staff Announced—Dr Stuart McGuire, Richmond has announced the official and medical staff of the Medical College Base Hospital Unit No 45 director, Dr Stuart McGuire, adjutant, Dr James H Smith, registrar Dr Greer Baughman, assistant director and chief of surgical staff, Dr W Lowndes Peple, surgeons, Drs Roy C Fravel, Joseph F Geisinger, Alvah L. Herring, Carrington Williams, Henry P Mauck all of Richmond, and Frank C Pratt, Fredericksburg, assistant director and chief of medical staff Dr J Garnet Nelson, staff physicians, Drs William B Porter Joseph T McKinney, Benjamin B Dutton Lot, and Junius E. Warinner, assistant director and chief of laboratory, Dr E. Guy Hopkins, diseases of eye, ear, nose and throat, Dr William B Hopkins, neurologist Dr Paul V Anderson, bacteriologist and pathologist Dr Charles Philips, roentgenologist Dr Frederick M Hodges, and dentists, Drs P J M Hughes and J D Williams

WASHINGTON

Military Surgeons Organize—The Washington Association of Military Surgeons was organized July 23, at the Field Hospital, American Lake Cantonment, and the following officers were elected president, Dr James B Eagleson, Seattle, and vice presidents, Drs James R. Yocom, Tacoma, H Eugene Allen, Seattle, and Samuel E. Lambert, Spokane

CANADA

New Sanatorium Opened—The Duke of Devonshire, governor-general of Canada formally opened a new sanatorium for tuberculosis at Weston, Ont., August 29

Model Baby Clinic—The Ontario Board of Health held a model baby clinic in connection with its public health exhibit at the Canadian National Exhibition held in Toronto, August 27 to September 8

Bruce Report Deferred—Sir Robert Borden, Canadian prime minister, has announced in the Canadian house of commons that the Bruce report in reply to that of Colonel Baptie would not be presented to the house at the present time

Canadians in Hospital.—Aug 28, 1917, there were 26,653 Canadians in hospitals in Canada and the United Kingdom, 8,840 being in Canada, and 17,813 in the United Kingdom The tuberculosis cases in Canadian convalescent homes numbered 1,115

Medical Editor Promoted—Capt Andrew Macphail, editor of the *Canadian Association Journal* who has been in France almost since the outbreak of the war, but recently attached to the Canadian Medical Headquarters in London, has been promoted to take charge of the Third Army Medical Department, with the rank of major

Public Health Association Meeting—The sixth annual congress of the Canadian Public Health Association will be held in Ottawa, September 27 and 28, under the presidency of Dr Joseph D Page, Quebec. During the same week the Canadian Conference on Charity and Correction and the Canadian Association for the Prevention of Tuberculosis will hold their annual meeting

Personal—Capt. W John O Malloch, M D., Toronto, who has been with the University of Toronto Base Hospital at

Saloniki, has been promoted to major and has returned to England——The following Canadian physicians have been mentioned recently in despatches Lieut-Col John A Amyot, Toronto, Col Ernest C Ashton, Brantford, Ont, Capt. G C Bonycastle, Toronto, Lieut.-Col Perry G Goldsmith, Toronto, Major Samuel H McCoy, Toronto, Lieut H W Cheney, Major O K. Gibson, Capt. Thomas F Graham, New York, Major W H Greene, Capt H C Hall, Major R M Harcourt, Capt J E Holmes, Lieut G H Kennedy, Lieut-Col George L Hume, Capt T W Lawson, Capt O N Leslie, Lieut-Col G F Macfarlane, Lieut-Col A A Magee, Capt Frederick R Mallory, D D S, Toronto, Capt V C W Marshall, Capt. G V Morton, Lieut-Col Richard Raikes, Capt L M Rathbun, Major J R Roaf, Lieut-Col Robert D Rudolf, Toronto, Major B J Saunders, Capt L P Sherwood, Capt H A Simmons, Capt S C Snively, Lieut-Col Clarence L Starr, Toronto, Capt D D Wilson and Major Robert E Wodehouse, Fort William, Ont

GENERAL

Bequests and Donations—The following bequests and donations have recently been announced

The American Red Cross has been given a credit on the Ford factories of $500,000 for automobiles, ambulances, parts, etc, as may be designated by the beneficiary

Middlebury (Vt) College, a trust fund of $100,000, to be known as the Henry Freeman Walker Furlough and Emergency Fund, for the benefit of the faculty of the Middlebury College, by the will of Dr Henry Freeman Walker

Episcopal Hospital, and Philadelphia Home for Incurables, about $10,000 each, by the will of Penelope Shepard

Meeting National Safety Council—The sixth annual meeting of the National Safety Council will be held in New York Sept. 10 to 15, 1917 According to the program issued there will be two general sessions, one for presidents and managers and one for young safety engineers In addition there will be a general round table meeting, sixteen section meetings and the national safety exposition There are 137 speakers on the program Each of the sixteen section meetings will relate to some particular industry, and the papers and addresses will refer to some phase of safety in that industry The health service sectional meeting will take up such subjects as "Industrial Hospitals and Dispensaries," "First Aid in the Industries How Much?" "Treatment of Minor Injuries", "The Need for Visiting Nurses in Industry", "First Aid and Surgical Work vs Medical Attention of Employees" General discussions will follow each paper

FOREIGN

Honors for Medical Aviators—Major L Falchi and Capt F Rossi are medical officers connected with Italian aviator squadrons, and both are accomplished airmen Each was recently awarded the silver medal for military gallantry on account of their air achievements and professional devotion In some of the flights Rossi was commander of the squadron

Italian Professors Reaching the Age Limit—The seventy-fifth year automatically retires this year from their chairs in the universities Golgi, Novaro and Roster Golgi and Novaro are both senators of the realm The former is professor of general pathology at Pavia, and Novaro of surgery at Genoa Roster is professor of hygiene at Florence

Deaths in the Profession Abroad—Major-Gen T Rosati, surgeon-general of the Italian navy, aged 57 He was formerly professor of ear and throat diseases at the University of Naples, and has published much on this specialty and on matters connected with the organization of the profession——J Veit, professor of obstetrics and gynecology at the University of Halle, aged 62 At one time he was privat docent at Berlin and later professor at Leyden, and has published numerous works on his specialty

Compulsory Surgical Operations on Soldiers—The Italian minister of war has refused to permit any operations on soldiers to render them fit for military service unless they consent thereto Senator Chiesa protests against this ruling, saying that there are at least 100,000 recruits who are rejected on account of hernia who could be restored to clinically normal conditions by an insignificant operation He says that so many prejudices have been modified by the necessities of war that it seems only fair that those who have some minor defect should have it corrected and thus give the army many thousands of valid recruits If they do not consent to this voluntarily the prejudice against compelling them against their will should be set aside during the exigencies of warfare

PARIS LETTER

Paris, Aug 2, 1917

The War

INFREQUENT POSTOPERATIVE DRESSINGS AT THE FRONT

Dr Chevassu recently addressed a communication to the Societe de chirurgie de Paris on this subject Dr Chevassu has shown that when a fresh war wound has been operated on at the front in a proper manner, the primary adhesions having been broken up, reasonable excisions made and the splinters of the projectile removed as far as possible, the too frequent renewal of dressings is much more likely to prove a cause of new infection than the absence of perfect technic as regards disinfection at the time of operation Chevassu is also of the opinion that the dressings of men operated on should not be touched until there is positive indication for removing them The only positive indication is the belief that something wrong or abnormal is taking place under the dressings, that the wound is not developing in the simple manner expected In that case the dressings should be changed in order to see what is going on If the temperature and the pulse are watched carefully, one can usually tell whether the wound is progressing normally It can usually be expected that every man operated on for leg or arm wounds will have some fever inside of twenty-four hours If the fever persists at the end of thirty-six hours, it merits attention If it has not subsided at the end of forty-eight hours, the dressings should be removed, especially if it is a question of wounds having their seat in dangerous zones commonly subject to gangrene, such as wounds of the buttock, the thigh, the calf and the arm In the matter of gas gangrene, the study of the pulse is even more instructive than the changes of temperature If, beginning with the twenty-fourth hour, the pulse becomes more rapid instead of slowing down, one should see what is going on

The sudden appearance of sharp pains in the region of the wound, abnormal bleeding, or the soiling of the dressings, may be taken as evident indications that something is wrong Except for these indications, Chevassu is of opinion that there is every reason to leave the original postoperative dressings in place for a week at least, which effects considerable economy in dressing material and saves the time of the personnel This is all the more true as regards visceral wounds, for here the mobilization necessitated by the change of dressings is a process fraught with danger With reference to cerebral wounds, Chevassu has carried the principle of infrequent dressings to its extreme limits, the postoperative dressings in such cases not being removed, if it can possibly be avoided, until about the twenty-fifth day This practice, combined with the internal use of hexamethylenamin, produced for him last year, during the Battle of the Somme, immediate results which were particularly favorable, since, of seventy-seven patients suffering from cerebral wounds he was able to evacuate fifty-three, or two thirds of the total number, the evacuation usually taking place at the end of a month But the principle of infrequent dressings is, of course, not applicable unless the wounds are properly treated at the outset An ample excision of tissue along the path of the projectile without useless waste of substance (but yet opening up the wound sufficiently), which in the case of wounds located near large masses of muscle implies an incision practically equal in length to the depth of the path of the projectile, is the first condition for proper treatment The extraction of the projectile is an excellent thing to do, but it is not absolutely indispensable, and it is well to know how to dispense with it when one is hard pressed by the vast numbers of wounded and has therefore little time to devote to it After ample excision throughout the path of the projectile, Chevassu strongly recommends draining the wound by the moderate use of gauze wicks dipped in physiologic sodium *chlorid solution* By the aid of this simple and economical fluid such a healthy, vivacious appearance of the wound is secured, and it heals so readily by second intention that Chevassu has never felt the need of using any other methods in the treatment of urgent operative cases at the front.

SUBSTITUTES FOR WHEAT

At a recent meeting of the Academie de medecine, Dr Maurel, professor of experimental pathology at the Faculté de médecine at Toulouse, presented a communication on the subject of substitutes for wheat now used in the production of bread, and discussed these substitutes from the standpoint of alimentary hygiene All the different kinds of flour which may be with the sanction of the government mixed with wheat flour have, according to Maurel, practically the same food value, contain the same amount of carbohydrates, and furnish approximately the same number of calories No objections on hygienic grounds may be raised against barley, buckwheat sorghum millet or beans The researches undertaken by Maurel lead him to affirm that bread into which the foregoing substitutes enter as constituents will be healthful and in spite of the great diversity of its components, will possess the same food value as bread made from pure wheat He fears however, that these substitutes taken collectively, may not be sufficient to make up the existing deficit In this case it will be easy to remedy the insufficiency by having recourse to the colonial substitutes so called, the use of which is authorized by law, among which rice is entitled to first place

A SPECIAL BADGE OF HONOR FOR NURSES

Justin Godart undersecretary of state for the military medical service has just issued an administrative order providing for a special badge of honor to be conferred on nurses who have especially distinguished themselves by their devotion and the value and length of their services among the sick and wounded military This badge of honor consists of two palm branches intercrossed above a small red cross It is attached by a white clasp and is worn on the left side of the hospital uniform when this style of dress is used, and on the outside coat above the army nurse badge when the nurse is dressed in civil garb The nurses who are members of the Societes d assistance attach the badge to the ribbon from which is suspended the emblem of their society This badge is made in three styles—of bronze, silver or gold The nurses must have given twelve months of efficient service in order to be adjudged worthy of this badge of honor The first year s service entitles one to the bronze badge, the second year s service makes one eligible to receive the silver badge, and after three years' service the gold badge may be bestowed

In the hospital units recommendations are made by the chief surgeons In the Societes d'assistance the chief surgeon makes recommendations either of his own accord or at the instance of the society He adds critical notes of his own In due time the recommendations are passed on through a chain of higher authorities each one giving in a few words the reason for the action he takes in the matter On the back of the recommendations is given a complete record of the candidate including any honorable mention he may have received. The badge of honor is bestowed by the undersecretary of state for the military medical service, who sends an official notification to the candidate informing him of the action taken

LONDON LETTER

London, Aug 16 1917

Exhaustion of the Supply of Medical Officers for the Army

The Central Medical War Committee has informed the government that after a careful survey of the whole of England and Wales it is of the opinion that no more physicians can be called on to take commissions in the Army Medical Corps without seriously endangering the supply of physicians for the treatment of the civil community and that further depletion can be effected on the responsibility of the government only after carefully comparing the military with the civil needs A few more appeals still remain to be heard before the last man considered available by the committee has entered the army but from September onward it will be quite impossible under present powers and conditions to satisfy the large demands of the Army Medical Department

In the overseas dominions a similar condition is approaching In the Australian Commonwealth an appeal is made to physicians to offer their services at once Young physicians are being sought in preference but even those of maturer age may be accepted It will probably be necessary to deplete the junior staffs ot the large general hospitals, and senior practitioners who cannot be usefully employed by the country in any other manner are asked to lay aside pride and take on the young man s job during the time of stress The Department of Defense will send to France every available physician within the next two months

The position is similar in New Zealand Hon G W Russell, the minister of public health recently said 'The medical profession up till the present has done splendidly in accepting the call to the colors and many physicians have at great sacrifice thrown up their practices and joined the forces, either for work in this country at the camps and on the medical boards on the hospital ships or with the forces in the field As regards medical service for the civilian population, the position is now becoming very acute From various parts of New Zealand there is a call for medical service owing to the depletion of those districts of physicians Up till the present there has not been any necessity to conscript medical men for military service, nor do I think there will be any need to consider the question in the future Some of the leading hospitals have lately been reduced to the direst straits on account of the shortage of physicians Recently we had to obtain the services of two medical students from Dunedin in order to carry on the work of the Christchurch Hospital These facts, and the shortage of physicians in some of the country districts, point to the absolute necessity of the medical services in New Zealand being mobilized and some control exercised throughout the period of the war as to the location of physicians So far as the large cities are concerned, owing to the large institutions they possess, they will probably be able to win through, although the physicians in practice in the cities are, of course, feeling the pressure of the large amount of additional work entailed on them owing to the absence of so many of their professional brethren This is not at all the position in other districts For example, the other day I received word from the Westland Hospital Board that there was only one physician on that part of the coast to cover 300 miles of country"

Economy in the Prescribing of Glycerin and Sugar

In The Journal, Sept. 1, 1917, p 748 attention was drawn to the withdrawal from the British Pharmacopeia of a large number of preparations containing glycerin and sugar in consequence of the necessity to economize in these substances The government issued a memorandum to physicians at the beginning of the year asking them to economize in the use of these substances, but this has not resulted in a sufficient diminution The position has become more stringent, and the General Medical Council has now made fresh representations on the subject. It is pointed out that glycerin for medicinal purposes is no longer being manufactured For such glycerin, therefore, as is required for the treatment of disease the country must probably depend, until after the end of the war, entirely on existing stocks These it is believed, would suffice to provide what is necessary But if they are drawn on unnecessarily, there is a danger that at a later stage glycerin will not be available for those purposes for which it is really required Of sugar, on the other hand a proportion of whatever supply is generally available will continue to be available for medicinal use Physicians are reminded that while sugar is of little use medicinally except as an adjuvant or excipient it is of the greatest value as a food It therefore ought not to be used for medicines unnecessarily The following suggestions are made to physicians As to glycerin 1 Substances for which glycerin is ordinarily used as a solvent are usually sufficiently soluble for all practical purposes in other mediums 2 Substitutes for sweetening and preservative purposes are also available, notably chloroform water 3 Where demulcent action is needed, one of the various mucilaginous bodies, such as mucilage of tragacanth will usually be found suitable 4 As a laxative, it is anticipated that physicians will find few cases in which glycerin can be said to be indispensable. 5 For cases in which the physical effects of glycerin on mucous and skin surfaces have led to its use as an ingredient of douches and lotions similar results can be attained by employing saline, alkaline or other solutions of varying strengths, selected to meet the particular needs of each case As to sugar 1 When sweetening is required agents other than syrup or sugar, such as chloroform water, should be used 2 Drugs that are ordinarily prescribed in sugar-containing combinations may usually be given without loss of efficiency in some sugar-free form A preparation made according to the following formula has been found useful as a substitute for either glycerin or syrup gum tragacanth in powder, 30 grains, chloroform, 40 minims, water to make 10 fluidounces

The Control of Venereal Diseases in Tasmania

In The Journal, Sept. 2 1916 p 757 I described the very drastic act passed in Western Australia for the control of venereal disease The legislatures of Tasmania and of Victoria have followed this example. The act for Tasmania is on very similar lines to that of Western Australia, but differs in details The treatment of those suffering from venereal diseases is restricted to physicians Every person suffering from venereal disease must obtain advice forthwith from a physician or must attend at a hospital or at a place prescribed for the treatment of these diseases Until a certificate of cure has been received, the patient must attend once in every four weeks The physician consulted must inform the chief medical officer of the attendance without giving the name or address of the patient. When any patient fails to return for treatment for six weeks, the physician must send to the chief health officer a notice including the name and address of the patient, unless he has been informed by some other physician that the patient is under treatment chief health officer is given power to order the patient btain treatment from a physician If the patient does t comply with the request of the chief health officer, a police magistrate may by warrant order the patient to be detained for any period not exceeding four weeks in any prescribed place, so that such clinical, chemical, bacteriologic and other examinations may be carried out to determine whether or not the patient is suffering from venereal disease If the patient is found to be affected with venereal disease, the governor is given power to order a further period of detention on the report of the minister of health that detention is necessary in the interests of the patient or the public welfare The right to appeal is given to the patient, and this can be exercised once every three months Any person undergoing detention who can satisfy the minister that he can obtain and is prepared to undergo suitable private medical treatment, may be released Every person detained in a place set apart for the care of patients suffering from venereal disease must be examined by two physicians once in every three months Women have the right to be examined, when practicable, by women physicians Prisoners under sentence who may be suffering from venereal diseases may be removed to a place set apart for the treatment of these diseases and detained for treatment The parents and guardians of persons under 16 years of age must obtain treatment for such persons Imprisonment for twelve months is the penalty for infecting knowingly any person with venereal disease Hospitals lose their subsidy or portion of it, if they fail to provide for the care and treatment of sufferers from venereal diseases Power is given to the minister to establish hospitals and dispensaries for the reception and treatment of patients, to arrange for treatment by physicians or at hospitals not receiving aid from the state, and to arrange for clinical, chemical and bacteriologic examinations and investigations free of charge to the patient Following Western Australia power is given to the chief health officer to act on the signed statement of any person in which it is asserted that some person is suffering from venereal disease The chief officer may require the person mentioned in the statement to obtain treatment from a physician If the order is not obeyed a magistrate may commit the person to a place of detention for the purpose of an examination to determine the presence or absence of venereal disease A penalty of $250 is provided for furnishing a wilfully false statement to the chief health officer

Marriages

Lieut Jay Marion Read, M R C, U S Army, Presidio of San Francisco, to Mrs Louise Mae Schussler of San Diego, Calif, August 11

Asst Surg Charles H Savage, U S Navy, Jackson, Ala, to Miss Helen S Woolley of Guntersville, Ala, at Washington, D C, August 18

Lieut Urban Henry Reidt, M R C, U S Army, Jeannette, Pa, to Miss Kathryn Aloysius Donegan of Irwin, Pa, August 20

Asst Surg Gerald Selby, U S Navy, Baltimore, to Miss Florence Hawes of Bainbridge, Ga, at Baltimore, August 18

Lieut Walter N King, M R C, U S Army, Corvallis, Ore., to Miss Anna Hagen of Great Falls, Mont, August 7

Samuel Wharton Rankin, M D, Concord, N C., to Miss Louise Evans Watkins of Flagstaff, Ariz, August 21

Arthur Francis McGinn, M D, Portland, Ore, to Miss Helen M Dimick of Oregon City, Ore, August 17

Rhett Goode Korniker, M D, McNary, La, to Miss Elizabeth Gokey of Houston, Texas, August 2

Richard Harrison Peake, M D, Hot Springs, Ark., to Miss Ethel Nicholson of Norfolk, Va, July 25

Albert Napoleon B Lemoine, M D, Nelson, Neb, to Miss Myrle Kohen of Hebron Neb, June 2

Orville D Johnson, M D, Brady, Neb, to Miss Ethel Potter of Gothenburg, Neb, July 19

Deaths

Lieut George Hiram Matson, Jr, M R C, U S Army, Columbus, Ohio, Ohio Medical University, Columbus, 1905; aged 47, a Fellow of the American Medical Association, professor of materia medica and pharmacy and assistant in therapeutics, and dean of the College of Pharmacy of his alma mater, for eleven years secretary of the Ohio State Medical Board, in 1910, elected secretary-treasurer of the National Confederation of State Examining and Licensing Boards, who was largely instrumental in the creation, in 1912, of the present Federation of State Medical Boards of the United States, was on the committee which drafted its constitution, and was elected its first secretary-treasurer, died suddenly, in the Union Station, Columbus, August 21, from heart disease

Samuel Patton Hand, M D, Demopolis, Ala, Tulane University, New Orleans, 1884, aged 57, a Fellow of the American Medical Association, formerly president of the Marengo County Medical Society, a member of the National Association of Railway Surgeons, local surgeon of the Southern Railway system, founder and president of the Bailey Drug Company, and founder of the Hand and Bailey Infirmary, died at his home, August 13, from angina pectoris

J Morgan Sims, M D, Collinsville, Ill, University of Louisville, Ky, 1890, aged 48, a Fellow of the American Medical Association, for many years coroner of Madison County, Ill, medical superintendent of state hospitals for the insane at Lakeland, Ky, and Little Rock, Ark, while under treatment at the Alton (Ill) State Hospital, August 16, committed suicide by jumping from the roof of a sun porch

John Taylor Harbottle, M D, Newark, Ohio, Starling Medical College, Columbus, 1900, aged 42, a member of the Ohio State Medical Association, for several years assistant physician at the Dayton State Hospital, died in Grace Hospital, Conneaut, Ohio, August 17, as a result of internal injuries received in an automobile accident near East Springfield, Ohio, nine hours before

John Strother Pendleton, M D, Scottsville, Va, Medical College of Virginia, Richmond, 1862, aged 78, surgeon in the Confederate service during the Civil War, surgeon at the Virginia State Penitentiary Farm for several years, for twenty-five years a member of the board of directors of his alma mater, died recently at the home of his daughter in Richmond

William H Van den Burg, M D, New York, New York Homeopathic Medical College, 1887, aged 55, a Fellow of the American Medical Association, professor of theory and practice of medicine in his alma mater, chief of staff of the Hahnemann Hospital, New York, died in that institution, August 22, from pneumonia, following an operation performed five days before

Benjamin Archer Waddington, M D, Salem, N J, University of Pennsylvania, Philadelphia, 1865, aged 75, formerly a Fellow of the American Medical Association, a member and once president of the Tri-County Medical Society, and Salem County Medical Society, one of the best known practitioners of South Jersey, died at his home, August 23

John T Cooper, M D, Muskegon, Mich, Grand Rapids (Mich) Medical College, 1902, aged 55, a member of the Michigan State Medical Society, county physician of Muskegon County from 1912 to 1915, a member of the obstetric staff and chief of the hydrotherapeutic department of the Hackley Hospital, died at his home, August 19

Joseph K MacConnell, M D, Cranford, N J, Starling Medical College, Columbus, Ohio, 1868, aged 80, formerly a member of the Medical Society of the State of New Jersey, and president of the Union County Medical Society, for many years town physician of Cranford, died in St Elizabeth's Hospital, Elizabeth, N J, August 15

Bernard Palissy Evans, M D, Quitman, Miss, Tulane University, New Orleans, 1910, aged 40, a Fellow of the American Medical Association, and president of the Clarke-Wayne Counties Medical Society, a member of the Association of Southern Railway Surgeons, died at his home, August 19, from aortic insufficiency

Charles Henry Thompson, M D, Novato, Calif, Homeopathic Medical College of Pennsylvania, Philadelphia, 1867, aged 75, formerly a member of the Medical Society of the State of California, a director of the Santa Rosa National and Union Trust banks, died at his home, August 14, from heart disease

Francis Frederick Markey, M D, Seattle College of Physicians and Surgeons, Chicago, 1899, aged 39, a Fellow of the American Medical Association, president of the Seattle Anatomical Club, died in the Providence Hospital, Seattle, August 17, from septicemia consequent on an operation wound

Abner J P Julian, M D., Lake City, Fla, University of Maryland Baltimore 1883, aged 58, formerly a Fellow of the American Medical Association, a member of the Florida Medical Association, at one time a member of the state legislature of Florida, died at his home, August 14

Lieut. Nehemiah Fay Tilton, M R C., U S Army, Marion, Ohio, Ohio Medical University Columbus 1901, aged 44, a member of the Ohio State Medical Association, and president of the Marion County Medical Society, died at his home, August 22, from nephritis

Douglas Gray MacRobbie, M D., Hamilton, Ont, Trinity Medical College Toronto Ont, 1899, aged 43, was found dead from skull fracture, August 20 in the office of an industrial plant at Hamilton He is believed to have been beaten to death

George Theodore Mundorff, M D, New York, New York University, New York, 1895, aged 45, formerly a Fellow of the American Medical Association, a member of the staff of St. Francis Hospital, New York died at his home, August 21

Samuel Meyer, M D., Louisville, Ky, University of Louisville Ky 1891, aged 48, also a druggist, for several years a member of the Louisville school board, died in the Jewish Hospital Louisville August 17 from cerebral hemorrhage

William Lowndes Wells, M D., New Rochelle N Y, College of Physicians and Surgeons in the City of New York, 1852, aged 88 surgeon of U S Volunteers during the Civil War, died at his home, August 17 from pneumonia

Ernest J Duncan, M D., Olive Branch, Ill St. Louis College of Physicians and Surgeons, 1902, aged 38, was shot and killed at Olive Branch August 25 by a lad who said that he and his sister had been mistreated by Dr Duncan

Thomas Crawford Parks, M D., Akron Ohio Starling Medical College Columbus Ohio 1883, aged 53, formerly a Fellow of the American Medical Association, died in the Massillon (Ohio) State Hospital August 23

Mary Starr Tudor, M D, South Windsor Conn Woman's Medical College of Pennsylvania, Philadelphia, 1892, aged 76 formerly a member of the Connecticut State Medical Society, died at her home August 24

Henry William Cronin, M D., Worcester Mass, College of Physicians and Surgeons Baltimore 1893, aged 54, a member of the Massachusetts Medical Society, died at his home August 20

Joseph B Walter, M D, Solebury Pa University of Pennsylvania Philadelphia 1868, aged 76, a member of the Medical Society of the State of Pennsylvania, died at his home, about August 18

Robert McDowell Reid, M D, Gastonia, N C, New York University New York, 1890, aged 52 a Fellow of the American Medical Association, died at his home August 14 from angina pectoris

William Rowan Barron, M D, Marion, Ala Medical College of Virginia, Richmond 1863, aged 83, a member of the Medical Association of the State of Alabama, died at his home, July 22.

John E Connell, M D., Marshall, Mo, St. Louis College of Physicians and Surgeons 1889, aged 52 a member of the Missouri State Medical Association, died at his home, August 18

James B Summer, M D., Bloomington, Neb, University of Vermont, Burlington, 1879, aged 70, formerly a member of the Nebraska State Medical Association, died at his home June 27

Fred H Hart, M D., Louisville, Ky, University of Louisville Ky 1897, aged 55, died in the Louisville City Hospital, August 11 from uremia

Isaac Meyer Birkey, M D, Newportville, Pa, University of Pennsylvania Philadelphia, 1865, aged 74, died at his home August 16

Ralph B Griswold, M D, Banksville, N Y, Eclectic Medical Institute, Cincinnati, 1857, aged 82, died at his home, August 17

Robert H Carter, M D., Lynnville, Tenn, University of Louisville, Ky, 1874, aged 70, died at his home, July 29

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

FERRIVINE, INTRAMINE AND COLLOSOL IODINE

Report of the Council on Pharmacy and Chemistry

E Fougera & Co, Inc, New York, acting as agent for The British Drug Houses, Ltd London, advertise "Ferrivine," "Intramine" and "Collosol Iodine" to the medical profession A circular entitled "Ferrivine, The New Anti-Syphilitic Remedy" begins

> ' FERRIVINE is the name given to ferric tri para amino benzene sulphonate This iron compound was first prepared by Mr J E R McDonagh F R C S by whom it has been both biologically and clinically tested It is slightly soluble in water the solution having an acid reaction
>
> ' INDICATIONS
>
> "According to Mr J E R McDonagh s researches, the phases of the *Leucocytozoon syphilidis* are killed by the lipoid globulin molecules of the serum which possess a stereo-chemical molecular configuration homologous to those of the lipoid globulin molecules of the parasite The process is one of absorption, a chemico physical reaction which is in part dependent upon the supply of active oxygen Active oxygen is formed directly by oxidation processes and the peroxide necessary for its formation directly by reducing processes Oxidation is increased by metals and reduction by non metals The non metal which acts in the body as the normal reducing agent is sulphur hence the discovery of Intramine (see separate pamphlet) The metal which acts in the body as the normal oxidising agent is iron, hence the discovery of Ferrivine "

A circular, "Intramine a New Non-Toxic Compound for the Treatment of Protozoal and Chronic Bacterial Diseases" expounds Mr McDonagh s ideas of the treatment of syphilis with Ferrivine and Intramine by means of the oxidising action of Ferrivine and the reducing action of Intramine and asserts

> "As the ultimate administration of oxidising and reducing agents will benefit almost any infection it may be said that Intramine is indicated in all protozoal diseases and in all chronic bacterial diseases especially in tuberculosis presumably in leprosy and possibly in malignant disease [cancer?] To the administration of Intramine there are no contra indications '

We are also told that

> Intramine is useful injected into the urethra in cases of chronic urethritis and perifolliculitis invaluable as a local application to chronic ulcers

The Intramine circular includes a "Scheme of Treatment for Syphilis" which advises in addition to Intramine, Ferrivine or salvarsan mercury and iodids the use of another proprietary called "Collosol Iodine." An inquiry addressed to Fougera & Co in regard to the character and composition of this preparation, brought the reply that the firm had no knowledge of its identity

This "scheme of treatment" is objectionable in that it advises the "stock" treatment of a disease which demands individualization and further in that whatever beneficial effects may result from the use of mercury and iodid is likely to be ascribed to the preparations "Intramine," "Ferrivine" and "Collosol Iodine"

The advertising for Ferrivine and Intramine sent out by Fougera & Co contains no experimental or clinical data on which an estimate of their value may be based Apparently in England, where these products were originated, little has been published regarding them

There is, however, one report which may be accepted as a carefully controlled clinical trial In the *Lancet* (June 17 1916, p 1214) L W Harrison D S O, M B, Ch.B Glasg, and C H Mills, M R C S, L R C P Lond., report on "The Effect of Ferrivine and Intramine on Syphilis" After briefly reviewing the theories which form the basis of McDonagh's proposed treatment of syphilis with his discoveries "Ferrivine" and "Intramine" the authors point out

> ' that Mr McDonagh s biological discoveries have not been publicly confirmed by any biologist of standing "

While·

> "eminent chemists have confessed themselves unable to understand his chemistry"

The authors explain

> "Recognizing that this might prejudice our practical tests of Intramine and Ferrivine, we have taken particular care to guard against their influence, cross checking our observations and submitting them to others for confirmation or otherwise"

Harrison and Mills chose for a *test three ordinary* cases of secondary syphilis, cases with well marked lesions, the clinical progress of which could easily be watched and from which it was easy to obtain specimens for microscopic examination After a detailed account of the three cases—which records grave conditions resulting from the treatment and which shows the inefficiency of the drugs—they write

> "From the above account it will be seen that the local and general reactions which follow the *injection* of these preparations are by no means pleasant In the case of Intramine the pain is undiluted torture, and lasts so for two or three days One of us had previously treated four cases with *Intramine* and the same local reaction occurred in these In two of them abscesses have burst outwardly, one of which is still discharging necrotic debris, ten weeks after the injection, and will take *many more* weeks to close In those cases where no abscess has yet burst it is easy to feel by the gap *in the muscles that* considerable necrosis has occurred None of these effects can be ascribed to sepsis, as *most rigid* aseptic precautions were taken Further, particular care was taken to make the injections strictly *intramuscular* The constitutional symptoms which follow immediately upon the injection of Ferrivine are distinctly alarming, and such as would cause one to hesitate before injecting this remedy into any but robust patients"

Harrison and Mills estimate the therapeutic effects of these drugs thus

> "1 That Ferrivine entirely failed *to* cause *S pallida* to disappear from the lesions *of three* well *marked* cases of secondary syphilis
>
> "2 After the failure of Ferrivine to cause the disappearance of *Spirochæta pallida from a mucous* patch a single dose of 0 3 gm salvarsan effected this in 18 hours, and the patch, which had hitherto been uninfluenced, had healed within 48 hours
>
> "3 *Clinically* we were unable to detect any influence of either or both these compounds on syphilitic lesions, *although each of them* was of the variety which heals in a week or ten days under salvarsan treat*ment*
>
> "4 Further syphilitic lesions *appeared immediately* after the treatment in one of the two cases treated with both Ferrivine and Intramine A *mucous patch* appeared on one tonsil as well as further syphilitic papules from which spirochætes were obtained The other case developed nephritis, with albumin and epithelial casts, which was not present prior to the injections"

While from these cases the obvious conclusion was drawn that Intramine and Ferrivine "have no specific effect on early syphilis," these authors subsequently treated a case of tertiary syphilis with the drugs An Intramine injection caused pain for several days but did not stop the progress of the disease Ferrivine was then administered "not without a feeling of grave responsibility" in view of their previous experiences They state that "the reaction which resulted in this instance was the most severe" they ever experienced after an intravenous injection of any of the antisyphilitic remedies with which they had previously worked It is stated that "for a period of some minutes there was grave doubt as to the patient's survival" After resuscitation the patient passed a disturbed night, and rigors which ensued lasted until the following afternoon The authors report that in this case also no clinical improvement occurred and that the Intramine-Ferrivine treatment was replaced by a course consisting of salvarsan, potassium iodid and mercurial inunction

Ferrivine, Intramine and Collosol Iodine were declared inadmissible to New and Nonofficial Remedies

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The General Practitioner's Duty—Preparedness for health in any state or community requires for the prevention of communicable disease, accuracy in early diagnosis by the *family practitioner* and *such means* and *knowledge* as *to* care *and treatment* as will shorten the period of communicability to the minimum and limit the contact between the sick person and the rest of the community to those who are insusceptible or to places where the conditions of residence and supervision will *prevent* exposure—Haven Emerson, M D, "Preparedness for Health"

Correspondence

"PATRIOTISM RAMPANT"

To the Editor—Referring to Dr Burr's letter in The Journal, Sept 1, 1917, p 751, it is true that *Eucken declared* that German Kultur was necessary to the spiritual *preservation of mankind* But he did not say that the English language should be barred from Germany

The Germans are still reading English literature, and are very frequently presenting Shakesperian plays, even more often than we are And even England itself has not barred the German language In the "Prospectus of University Courses in the Manchester School of Technology," Manchester, England, session of 1917-1918, you will find that all courses, namely, mechanical engineering, electrical engineering, municipal and sanitary engineering, and applied and textile industries, provide for the teaching of German German textbooks are recommended for the use of the *students*, and no other foreign language is mentioned Must we *out-English the* English?

One other question If we discard the German language, should we *not* be *consistent* and refuse to make use of any of the German discoveries? *For instance, would* it not be unpatriotic to perform the Wassermann test, to administer salvarsan or to look for the gonococcus and the *Spirochaeta pallida?* For as you know, they all come from German sources

William J Robinson, M D, New York

To the Editor—Once more, please, something in answer to "Patriotism Rampant" Should we discard the German language we would have to dismiss about half of the English as well Have we ever stopped to think how much alike these two languages are? There are many like words in the two languages *modified only in form*, their common origin can be recognized readily This goes to *show that we* are *of* common stock belonging to the Low German race, from which came the Angles and Saxons "Some historians, as Prof Henry Morley, regard the distinction between Saxon and Angle as a mere *accidental* difference of name, the people themselves employing the name of Angles, while Saxon was a foreign designation by the Romans and Celts" The authority Bede says that the Angles were one of three tribes that passed over from the continent in the fifth and sixth centuries into England and formed the dominant element in its subsequent population During the reign of William the Conqueror, a host of words of Latin-French or English form crept into the English, making the language a hodgepodge It is hard to tell just how they ever got there, yet there also appear in the English language a number of Greek words, thus showing the language to be a veritable mongrel However, be it as it may, the two peoples, the German and *the* English, have so *much in* common that they should be shaking hands instead of nursing discord and hatred

Robert Peter, M D, Chicago

To the Editor—If it was the intention to discredit or make ridiculous the subject matter of my letter in The Journal, September 1, by reprinting the caption "Patriotism Rampant," the object might have been better attained by following the lead of your lay contemporary, the Detroit *Abend Post* in employing "Hysterische Patriotismus"

I submit that it is necessary to put a crimp in the sort of propaganda detailed in my letter to the Detroit *Saturday Night*, which I enclose, and if any better method is known to this end than minimizing the importance of study in this country of a very much overestimated foreign language, it is somebody's duty to suggest it. The Teutonic plan of sneering at anything which bears the remotest resemblance to American patriotism is becoming more and more unpopular, and what is denominated in German printed papers in this country the "nativist" press, whether lay or medical, will soon discover it.

There are three ways of graduated effectiveness in dealing with a bully—cow, cripple or kill—and if a mischievous agitator can be at least temporarily made aphasic, it may save a situation

Two German papers which I read and from which the quotations in the Detroit *Saturday Night* were made are now squealing about "Hetze" Let them cease their own baiting, which they will do when they deem it expedient, but never before.

To discourage for the present at least the teaching of German in this country would be equivalent to extracting poison fangs from the copperhead Tearing tributes to the kaiser from spelling books is not enough In the language of a recent writer, it is more important to know who is responsible for their introduction there

I have no distinct recollection of the resolution to which you referred in The Journal comment of August 18, but hereby proclaim aloud my approval of it, provided its terms are as you outlined

C. B Burr, M D, Flint, Mich
Member Michigan State Board of Registration in Medicine

THE ROLL OF HONOR

To the Editor —Kindly allow just a word regarding Capt H. H. Roberts' misconception of 'sacrifice" when in a letter published in The Journal (Aug 18, 1917, p 583) he refers especially to those physicians who in accepting military commissions, have relinquished practices that yielded from 'thousands of dollars" to $100,000 annually I trust that no one would have the temerity to assert that men in that financial class are not sacrificing heavily when they go to the front, but I do wish to emphasize that while their absolute monetary loss is in six figures, the real sacrifice involved is far smaller than that offered by men of meager earnings

I ask, Which man gives more—he who has the reserve income that goes with a $100 000 practice whose family will suffer no financial deprivation whose life is heavily insured, whose repute is such that he can easily revive his practice after a long absence, or he who has had to live on a meager income of four figures, whose hard savings yield a negligible income, whose life insurance is small whose practice evaporates during a six months' absence, whose family must suffer deprivation when his income is reduced and who must again painfully climb the ladder from the lowest rung on his return?

I repeat that both are to be greatly admired for their patriotism and sacrifice But let no man believe that the rich physicians are sacrificing more than, or perhaps as much as are the poorer ones

Edward von Adelung, M.D., Oakland, Calif

END MONOPOLY ON SALVARSAN

To the Editor —To the communication of Dr S Pollitzer (The Journal, July 28, 1917 p 305) concerning the price of salvarsan in this country, I wish to add one thing and I will ask a few questions

In Athens, Greece, in 1913, I used to buy either salvarsan or neosalvarsan, the full dose, 0 9 gm., for 8 drachmas, or $1 55, and the minimum dose, 0 45 gm, for 4.50 drachmas, or $0.89, and the same drugs were sold to the hospitals for 20 per cent. less

What then makes the price of salvarsan in the United States so high? Does it pay duty? How much does the same thing cost in Germany? What is the price of arsenobenzol in comparison of that of salvarsan if 'the chemicals that enter cost normally only a few dollars per pound"? Why pay $3 per 0.3 gm of galyl, another arsenical, in this country?

G Katsainos M.D, Boston

Typhoid in 1898—In our war with Spain we had 20,738 cases, with 1,580 deaths, among 108,000 men all occurring within three and a half months, one man in every six had the disease, while this proportion was increased to one in five among those regiments which never left the United States—Keefer, Military Hygiene.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted, on request.

LITERATURE ON DIET AND NUTRITION

To the Editor Please supply me with information or advice as to the best work, that is, the most accurate work, dealing with nutrition and clinical dietetics, as the workers vary in their opinions concerning the food values and estimated calories to be found in the various kinds of foods.

The great number of such workers makes it difficult to select the best works that can be accepted as giving one the most accurate knowledge as to the work that has been carried out

I feel that you can advise me without being influenced by any works which may have been put on the market by any of the numerous publishing companies

Thomas H Potter M D, Detroit

Answer.—It is always embarrassing to attempt to select a best treatise on most subjects because many good books have individual features of merit that specially recommend them The problem is somewhat like the one involved in the request to name the best breed of dairy cattle That depends!

Our correspondent will find a thoroughly up-to date presentation of the subject of nutrition both in health and in disease in the newest edition of Graham Lusk's "The Elements of the Science of Nutrition," Philadelphia, W B Saunders Company, 1917 It is in many respects one of the best general reviews of the scientific substratum on which present-day knowledge of the subject rests Some of the debated aspects of metabolism are attractively presented by Otto von Fürth's 'Problems of Physiological and Pathological Chemistry" translated by A J Smith Philadelphia, J B Lippincott Company Individual features are treated more exhaustively in a series of 'Monographs on Biochemistry," published by Longmans, Green & Co, New York. This includes detailed expositions of such topics as the carbohydrates the fats the proteins the nucleic acids, etc, and their behavior in the body The volume by F P Underhill "Physiology of the Amino-Acids," New Haven Yale University Press, will introduce the reader to the significance of one of the most important fields in the science of nutrition Various excellent treatises such as Joslin's "Treatment of Diabetes" or H G Wells' "Chemical Pathology" deal with the intricacies of metabolism in disease Among numerous books on dietetics attention may be called to Friedenwald and Ruhräh's "Diet in Health and Disease," Philadelphia, and W G Thompson's "Practical Dietetics" In a category by itself is the excellent book by Mrs M S Rose "Feeding the Family," New York, Macmillan Company, which combines the latest contributions of physiology with practical directions for the dietary in a singularly effective and readable manner Here, too, will be found a large collection of selected data on the calory values of foods, as well as rational guidance in the selection of foods for individuals of all ages As a compilation of analyses Bulletin 28, Office of Experiment Stations, U S Department of Agriculture, Washington D C. (for sale by Superintendent of Documents, Government Printing Office, Washington, D C., price 10 cents) on 'The Chemical Composition of American Food Materials" is *facile princeps* and should be in the hands of every progressive physician We also urge those interested to obtain a copy (without charge) of Farmer's Bulletin 808 U S Department of Agriculture, Washington D C, on 'How to Select Foods I, What the Body Needs ' This gives a simple method of selecting and combining food materials to provide an adequate attractive and economical diet. It also contains a long list of the excellent publications of that department of interest in connection with the subject. The newer aspects of nutrition study have been reviewed in The Journal in recent years by L B Mendel "Nutrition and Growth" (May 8, 1915, p 1539), and by E V McCollum, "The Supplementary Dietary Relationships Among Our Natural Foodstuffs" (May 12, 1917, p 1379) To these may be added Graham Lusk's "The Fundamental Basis of Nutrition," New Haven, Yale University Press, 1914, and F C. Gephart and Graham Lusk's "Analyses of Ready-to-Serve Foods," Chicago, The American Medical Association Press, 1915

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona Phoenix, Oct 2 3 Sec, Dr *John Wix Thomas, 306 Good*rich Bldg, Phoenix

California *Los Angeles, Oct 9 13* Secretary, Dr Charles B Pinkham, State Capitol, Sacramento

Colorado Denver, Oct 2 Sec, Dr David A Strickler, 612 Empire Bldg, *Denver*

District of Columbia Washington, Oct 9 11 Sec, Dr Edgar P Copeland, The Rockingham Washington, D C

Georgia Atlanta, Oct 9 11 Sec, Dr C T Nolan Marietta, Ga

Hawaii Honolulu, Sept 10 13 Chairman, *R* W Benz, 1141 Alakea St, Honolulu

Idaho Pocatello, Oct 2 Sec, Dr Charles A Dettman Burke

Illinois Chicago, Oct 9 11 Superintendent of Registration, Mr F C *Dodds, Springfield*

Iowa Des Moines, Oct 9 11 *Sec, Dr G H Sumner, State House,* Des Moines

Massachusetts Boston, Sept 11 13 Sec, Dr Walter P Bowers, Room 501, No 1 *Beacon St, Boston*

Michigan Lansing, Oct 9 11 Sec, Dr B D Harison, 504 Washington Arcade, Detroit

Minnesota Minneapolis, Oct 2 5 Sec, Dr Thomas S McDavitt, Lowry Bldg, *St Paul*

Montana Helena, Oct 2 Sec, Dr William C Riddell, Power Bldg, Helena

National Board of Medical Examiners Chicago, Oct 10 18 Sec, Dr J S Rodman 2106 Walnut St, *Philadelphia*

New Jersey Trenton Oct 16 17 Sec, Dr Alexander MacAlister, 438 E State St, Trenton

New Mexico Santa Fe, Oct 8 Sec, *Dr R K* McClanahan East Las Vegas

New York Albany, Buffalo, New York City and Syracuse, Oct 2 5 Chief, Examinations Division, Harlan S Horner State Education Bldg, Albany

Oklahoma Oklahoma City, Oct 9 10 Sec, Dr Ralph V Smith, 502 Daniel Bldg, Tulsa

Porto Rico San Juan Oct 2 Sec, *Dr M* Quevedo Baez, San Juan

Rhode Island Providence, Oct 4 5 Sec, Dr Byron O Richards, State House, Providence

Utah Salt Lake City, Oct 1 2 Sec, Dr G F Harding, Templeton Bldg, Salt Lake City

Louisiana June Examination

Dr E. W Mahler, secretary pro-tem of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, June 7-9, 1917 The examination covered 11 subjects and included 100 questions The percentage required to pass was 75 Of the 41 candidates examined, 34 passed and 7 failed Two candidates were licensed through reciprocity The following colleges were represented

College	PASSED	Year Grad	Per Cent
Chicago College of Medicine and Surgery		(1917)	87
Tulane University of Louisiana	*(1916) 88 9, (1917) 79 1, 80 6, 84 7,* 85 2, 85 3, 86, 86 1, 86 7, 87 2, 87 4, 87 4 87 9, 87 9, 88, 88, 88 6, 88 8, 89, 89 6 89 6, 89 7, *90 4,* 91 4, 91 4, 92 9, 93 7, 95 4		
University Medical College of Kansas City		(1896)	86 2
Meharry Medical College	(1916) 76 3,	(1917)	77 3
Memphis *Hospital Medical College*		(1912)	79
Vanderbilt University		(1914)	89 8
	FAILED		
Chicago College of Medicine and Surgery		(1917)	69 8
Maryland Medical College		*(1910)*	32 9
Meharry Medical College	(1916) 63 7,	(1917)	61
Memphis Hospital Medical College	(1911) 71 2,	(1912)	55 6
University of Nicaragua		(1909)	62 2

College	LICENSED THROUGH RECIPROCITY	Year Grad	Reciprocity with
College of Physicians and Surgeons, Chicago		(1907)	Illinois
Tulane University of Louisiana		(1915)	Mississippi

Florida June Examination

Dr E W Warren, secretary of the Regular Board of Medical Examiners of the State of Florida, reports the written examination held at Palatka, June 19-20, 1917 The examination covered 7 subjects, and included 70 questions The percentage required to pass was 75 Of the 30 candidates examined, 28 passed, and 2 failed The following colleges were represented

College	PASSED	Year Grad	Per Cent
Birmingham Medical College		(1915)	75
University of Alabama		*(1914)*	77 6
Atlanta Medical College	*(1914) 75 3,* (1916) 90 4,	(1917)	79 4
Southern Medical College		(1897)	69 1*
Rush Medical College		(1906)	88
Kentucky School of Medicine	(1891) *62*,*	(1892)	74 6*
Louisville Medical College		*(1875)*	62*
Tulane University of Louisiana	(1910) 78,	(1917)	83 1
Johns Hopkins University		(1909)	85 7
University of Maryland	(1884) 58*	(1916) 78 1,	86 1
University Medical College of Kansas City		(1901)	77 3
University of the City of New York		(1880)	*74 3**
Medical College of Ohio		(1900)	73 3*
University of *Cincinnati*		(1911)	91 3
Jefferson Medical College of Philadelphia		*(1901)*	83 4
University of Pennsylvania		(1894)	84 5
Med Col of the State of South *Carolina*	(1915) 85,	(1917)	90 3
Lincoln Memorial University		(1916)	82 4
Meharry Medical College		(1917) 76,	84 3
Vanderbilt University		(1892)	66*
	FAILED		
Bennett *Medical* College		(1915)	65 4
Louisville *Medical College*		*(1891)*	49 7

* Credit allowed for years of practice

Oklahoma January Examination

Dr Ralph V Smith, secretary of the Oklahoma State Board of Medical Examiners, reports the oral and written examination held at Oklahoma City, Jan 9-10, 1917 The examination covered 11 subjects and included 100 questions The percentage required to pass was 70 Six candidates were examined, of whom 4 passed, and 2 failed, including 1 osteopath Twenty-six candidates were licensed through reciprocity and 5* were granted reregistration licenses The following colleges were represented

College	PASSED	Year Grad	Per Cent
Rush Medical College		(1916)	88
Harvard University		(1916)	86
University of Cincinnati		(1912)	82
University of *Pennsylvania*		(1908)	81
	FAILED		
Memphis Hospital Medical College		(1913)	*64*

College	LICENSED THROUGH RECIPROCITY	Year Grad	*Reciprocity* with
University of Arkansas		(1912)	Arkansas
Hahnemann *Med* Coll *and Hospital of Chicago*		*(1900)*	Nebraska
Rush Medical College		(1893)	Kansas
University of Louisville		(1907)	Mississippi
Tulane University of Louisiana	(1888) (1891)	(1892)	Mississippi
Baltimore Medical College		*(1896)*	California
College of Physicians and Surgeons, Baltimore		(1886)	W Virginia
American Medical College		(1909)	Arkansas
St Louis University	*(1906)* (1912)	(1914)	*Missouri*
University Medical College of Kansas City		(1911)	Missouri
Jefferson Medical College of Philadelphia		(1904)	Mississippi
Chattanooga Medical College		(1893)	Georgia
Memphis Hospital Medical College	(1888) *(1901)*	(1905)	Mississippi
University of Nashville	(1901) (1906)	(1908)	Mississippi
University of the South		(1899)	Mississippi
University *of Tennessee*		*(1913)*	*Mississippi*
Vanderbilt University		(1901)	Mississippi
Dallas Medical College		(1904)†	Texas

* Includes one whose name is not on the official list of the institution *named—the Louisville Hospital Medical College*

† The name of this candidate does not appear on the official list of the graduates of this school for the year given

Book Notices

Mental Adjustments By Frederic Lyman Wells Cloth Price, $2 50 net Pp 331, New York D Appleton & Co, 1917

In his preface, the author says, "To the individual, better self-understanding means better self-control, and wiser ordering of one's actions along the normal paths of happiness" He might have added that better self-understanding means better understanding of others, and understanding others is no inconsiderable part of the task of the physician The book is a delightful presentation of some of the more recently acquired knowledge of ourselves As Professor Jastrow says in the introduction, "Life remains a struggle and a conflict," but the original simplicity has long since departed It is now intricately complex Modern psychology has contributed much to our knowledge of the psychic and especially the affective factor in this complex struggle The book deals with this factor, and because of its quality is a real contribution to the psychology of our daily life In no sense is it a medical textbook, but any physician who is not blind to the fact that there are patients as well as diseases will read it with profit If his work is with the nervous and unbalanced he should be quite familiar with much of it But is he?

The subjects of the various chapters, mental adaptation, use and waste in thought and conduct symbolic association the continuity of emotion types of dissociation, mechanisms in dissociated ideas, and experimental approaches and balancing factors, indicate the ground covered Judging by this book the attitude of the author may be said to be that of a modified freudian The modification will be much to the taste of some readers Whether a pill is coated with sugar or with asafetida may have nothing to do with its wholesomeness but much with its acceptability From many of the freudian concepts the author (consciously or unconsciously) removes the coating of sexuality so distasteful for many (perhaps because sexuality is confused with sensuality) and substitutes the palatable one of natural history To some ears love-life' has a much nicer sound than "libido" Another illustration may be more apt To go straight to the top of a steep hill is sure to be laborious, for some travelers impossible But if one is led by winding easy gradients he may scarcely realize that he is mounting until he has reached the summit To inquire whether Dr Wills has deliberately done this thing might be an impertinence that he has done it seems to be apparent, that he has done it well is obvious He is more than clever, he is able

To review the matter in detail would exceed the limits of a book notice. A few indications must suffice After explaining what mental adaptation is in Chapter II the author tries to answer the question What are the general sources and characteristics of faulty adaptations? that is, of failure failure to attain a specific end or failure in life The chapter on symbols beginning with the simplest passes by way of the more complex especially those of language to the symbolic associations of dreams Chapter IV, on the continuity of emotion considers affective displacement transference siphoning sublimation regression etc. and leads to the generalization of 'the persistence of affectivity independently of the idea to which it attaches ' Types of Dissociation" covers many of the manifestation of hysteria and dementia praecox and Chapter VI is really an abbreviated exposition of the (somewhat modified) freudian tenets of the unconscious We quote its conclusion

> Each mental process habitual or incidental leaves its mark upon the personality sometimes conscious mostly unconscious. The memory of a good action ' is precious long after the deed is forgotten Man s special faiths interests hobbies friendships enmities ambitions and infatuations are fashioned not from the fraction of experience he can remember nor yet from innate features of being he cannot control but from a body of unconscious experience vaster than knowledge which imparts to the objects of consciousness by affective transference, their human values This mighty and invisible potency of forgotten experience gives added import to all education and sanction to each daily task.

From the last chapter we quote (p 303)

> *Happiness is the conscious phase of mental adaptation* Mental adaptation consists in a balance between the energy the organism has to spend and the outlets for expending it The outlets useful for this purpose are balancing factors We saw that it might be sought in selfish egoistic ways or in unselfish altruistic ways but that it is more frequently found in the latter We discussed the bearing of this upon the love life which reaches its fullest development in maintenance of family

These excerpts might indicate that the text is technical and hard reading It is neither And it should be emphasized that the author constantly makes a commendable effort to render his psychology immediately utilitarian—a psychology of living as well as of life Finally, a book that makes the reader think may not be a great book, but it is a good one. This is such a work

Pulmonary Tuberculosis A Handbook for Students By Edward O Otis M D Professor of Pulmonary Diseases and Climatology Tufts College Medical School Boston Cloth Price, $1 25 Pp 220 with 20 illustrations Boston W M Leonard, 1917

This book is primarily intended for students of the third and fourth years of medical school It is written in interesting pleasing and simple style with a symbolic verse heading each chapter The book contains only the main essential facts but they are modern and complete. No time is wasted in discussing unimportant theories, and symptoms and signs are correlated and given due proportionate weight.

Medicolegal

Advertising Under Name Other than Own to Practice Medicine

(People vs Wilkes (N Y), 163 N Y Supp 659)

The Court of Special Sessions, New York County says that the defendant was charged with having violated Section 174 of the public health law, which provides that any person who shall practice medicine or advertise to practice medicine under a name other than his own shall be guilty of a misdemeanor As specification of the act constituting the offense, the information set forth, together with a translation into English an advertisement published in the Russian language in a newspaper, as to which advertisement there was no question but it was one to practice medicine The defendant by demurrer challenged the sufficiency of the formal charge against him He contended that the advertisement was not one by him under a name other than his own, that no name of the advertiser within the meaning and effect of the statute, was contained in the advertisement In the heading of the advertisement appeared the words 'Russian Medical Help, 56 Rivington Street New York" At the foot of the advertisement, without any words of connection with the rest of the text and as a distinct element of the paper so published, appeared the same words Russian Medical Help," and, under that, the words Hours 10 a. m to 10 p m First consultation free. Office, 56 Rivington street. Drug store, 34 Rivington Street New York." The publication contained no other words of identification of the advertiser In the body of the advertisement the advertiser was represented by the personal pronoun of the first person sometimes in the singular and sometimes in the plural The court is of the opinion that the words "Russian Medical Help" as used in the advertisement published by the defendant as set forth in the information, constituted a name other than the name of the defendant under which he was advertising to practice medicine, and hence that the information effectively charged a violation of the statute, and that the demurrer of the defendant to the information should be overruled The word "name," in common usage for particular designation, is applied, not only to the conventional form, but to any word or combination of words used for individual identification, including forms which are descriptive whether by direct expression of defining quality or by expression of related ideas, in the form of metaphor, metonymy, synecdoche or other figure of speech

Limitation of Actions for Malpractice, Especially for Causing Argyria

(Hahn vs Claybrook (Md), 100 Atl R 83)

The Court of Appeals of Maryland says that this action was instituted, Sept. 20, 1915, by the plaintiff against the defendant to recover damages for alleged professional negligence and unskilfulness between the years 1902 and 1910, in that the defendant negligently prescribed for the use of the plaintiff argentum oxid, which was taken in such quantities by her as the patient of the defendant under his direction and treatment, as to cause argyria or a chronic pigmentation or discoloration of the skin due to silver poisoning At the conclusion of the testimony on the part of the plaintiff the trial court directed a verdict for the defendant on the ground that the plaintiff's suit was barred by the statute of limitations In this there was no error, and the judgment of the lower court is affirmed

The question of the defense of limitations in the class of negligence cases, such as was presented by the record in this case, is one not only of considerable interest but also of importance Under the Maryland law, if the plaintiff's right of action arose and accrued more than three years before the suit was begun, the relief here sought must be denied This presented the controlling question on this branch of the case, which was, When did the act or wrong occur from which the plaintiff sustained the injury for which she sought damages in this case, and when did that injury become apparent, so as to give her a right of action, and to then bring a suit? The general rule, as to when the statute of limitations begins to run, has been stated to be as soon as the cause of action accrues, whether or not it is the case of a trust, if it is a fit subject for a suit at law as well as in equity, the statute of limitations begins to run The general rule, in cases of neglect of duty arising from contract and the breach of a professional duty by a physician, surgeon or an attorney is held to fall within this rule In the case at bar, the court thinks the plaintiff, on any aspect of the proof, was clearly barred by the statute of limitations from maintaining the suit, because her cause of action arose and limitations began more than three years before the date when the suit was instituted

The plaintiff testified that she employed the defendant as a practicing physician, and he prescribed for her from 1904 to some time in the year 1910, that she called on him for treatment about three or five times a year, that she consulted other physicians during that period, but that the defendant treated her for indigestion or stomach trouble, that she took his prescriptions as directed three times a day, half an hour before meals, that in the latter part of 1908 she noticed a change in the color of her skin It would seem to be clear and to admit of no doubt that, according to the undisputed evidence in the case, the discoloration of the plaintiff began at least in 1908, and, as stated by her husband, "she commenced to get worse in 1908, kept getting worse all along up to 1913, when she was at the worst" The discoloration of her skin, of which she complained to her husband in 1908, was a sufficient indication of an injury to have put her on notice and inquiry, and it was clear from the evidence that if she had exercised ordinary care and diligence to have ascertained her rights, she could have discovered the cause of her alleged injury The ground of the cause of action in this case was the discoloration of the plaintiff's skin by the use of argentum oxid, and the statute of limitations began to run from the time of the discovery of the alleged injury therefrom As stated by the court below, when she began to be discolored that showed an injury, and that was the injury of which she had a right to complain Then was her cause of action

Injury to Physician Answering Call

(Jones vs Pennsylvania Coal & Coke Corporation (Pa), 99 Atl R 1008)

The Supreme Court of Pennsylvania affirms a judgment for damages for the plaintiff for personal injuries sustained by him in attempting to use a telephone on the defendant's premises while there in answer to a call received through a boy who said that one Carroll had sent him for a doctor There had been a severe electrical storm, and lightning had struck a power wire between the substation in which Carroll was the defendant's engineer and a mine shaft breaking the wire and causing it to fall on the telephone wire Carroll had been knocked down in trying to answer the telephone and had gone to the boiler house at the shaft where he found the engineer dead or unconscious He testified that he said nothing about a doctor except that one would be of no use as the man was dead, but the jury found that he instructed the boy to summon a physician The plaintiff testified that he responded immediately to the call and went to the shaft He found no one in the boiler house except the man lying unconscious or dead on the floor not far from the telephone box He examined him, but, being unable to determine certainly whether or not he was alive, turned to the telephone to summon aid, and was seriously injured by an electric current

The plaintiff alleged that the defendant was negligent in the construction maintenance and operation of the high-tension power line and the telephone line which resulted in his injuries, and the verdict of the jury established that the defendant was negligent, as alleged, while the plaintiff was free from fault But the defendant denied the right of the plaintiff to recover damages for the following reasons (*a*) He was a mere licensee on the premises, (*b*) if an invitee, he exceeded his invitation by attempting to use the telephone, and (*c*) the defendant had no knowledge, either express or implied, that the premises were in a dangerous condition, had no time to repair, and did not know that the plaintiff contemplated going on the premises

The court holds that the emergency and immediate necessity for prompt action to meet it, by summoning the physician was authority for Carroll to act in the absence of the officers of the company and his inability to communicate with them The emergency of an accident, or an unusual condition which requires prompt action, may invest the representative of the company, highest in authority, who is then present, with power to do such things as are reasonable to meet the emergency In other words, holding, as the court does, that the plaintiff was an invitee on the premises at the time he was injured, it followed that it was the defendant's duty to keep the premises in a safe condition that he might not be injured while he was there professionally in response to the invitation The court does not determine, as it was not involved in the case, that Carroll had implied authority to bind the defendant for professional services rendered by the plaintiff to the injured employee, but simply that he had the authority to invite the plaintiff on the premises for the purpose of rendering aid to the employee, and that the plaintiff went on the premises by express invitation, and not as a licensee

The court was not favorably impressed with the argument that the plaintiff exceeded his invitation by attempting to use the telephone It certainly could not be so declared as a matter of law He did not leave the spot where the body lay to make use of the telephone, and was therefore clearly within the space to which the invitation referred The telephone was one of the means he attempted to use to carry out the purpose of the invitation Nor was there any merit in the defendant's contention that there could be no recovery because it had no knowledge or notice that the premises were in a dangerous condition and no time to repair, and did not know that the plaintiff contemplated going on the premises, for the negligence complained of and shown was the defective construction of the power and telephone lines and failure to safeguard against a broken uninsulated power wire falling on the telephone wire.

Liability of Corporation Undertaking to Treat Hernia—A "Plas-tr-pad" Case

(Weller vs Plapao Laboratories Incorporation (Mo) 191 S W R 1056)

The St Louis (Mo) Court of Appeals reverses a judgment rendered in favor of the defendant remands the case for further proceedings, and denies the defendant a rehearing, in this action brought by the plaintiff to recover damages for the death of her husband from strangulated hernia after using the defendant's plas-tr-pads The court says it appeared that the plaintiff's husband had been suffering from hernia for a number of years and had been wearing steel and elastic trusses Acting for him, the plaintiff wrote in his name, from their home in Tennessee, to the defendant at St Louis, that, having seen the defendant's advertisement, he wrote for a trial treatment of the defendant's plas-tr-pads for rupture In response he received a blank printed slip and book of testimonials, together with some ointment He, or the plaintiff, filled up the blank and returned it to the defendant with a postal order for $6 75 He then received three plas-tr-pads and directions for applying them This was in the afternoon of the fifteenth of the month, and the plaintiff applied them to her husband, the appliance consisting of a pad and a belt the pad containing medicinal matter, as it was said, and intended to press into the hollow and over the protruding intestine, which was to be pushed back, that part of the pad being covered with plaster so that on being affixed to the body of the patient it adhered After applying this pad, the plaintiff's husband who was an engineer on a switch engine, went to work and the day after the intestine protruded, he was taken to a hospital, and it was found that he had a case of "locked bowels" resulting from strangulated hernia from which he died on the nineteenth

Certain cases, while not altogether applicable here, are illustrative of the proposition that a case of this kind falls under the classification of actions for negligence, applied in one case to a sale of an article containing poisonous fluid, in another to a case of malpractice True the defendant here—a corporation—was not holding itself out as a physician or surgeon but there was testimony tending to prove that it did undertake as evidenced by its literature sent to the plaintiff's husband to treat and cure hernia and a cure is more than any reputable physician or surgeon usually guarantees That it undertook to treat the plaintiff's husband for his affliction by mail or correspondence and without a personal inspection and visit was immaterial It did undertake to cure him of his afliction if he used its pad While the defendant did not hold itself out as a practicing physician and surgeon when it undertook to treat and even cure hernia or rupture it surely was under the like obligation of a physician and surgeon to do so with all due care for the life of the patient or, as here its customer, and that it exercise the care required to do no injury or furnish no harmful appliance Failure to do that is actionable negligence, and if injury results and the party treated dies then the act of the defendant was a wrongful act The defendant had no right to send out this appliance unless it knew, or had reason to believe that it was reasonably safe

Regarding this as an action to recover damages for negligence for a wrongful act causing death, the court thinks it was maintainable under either the laws of Tennessee or those of Missouri The evidence in it was of such a character as rendered it peculiarly one for the determination in the first instance by a jury so the court finds no reason to hold either that the petition failed to state a cause of action or that the trial court erred in submitting the cause on the evidence to the jury but for errors in the instructions given the jury the judgment of that court must be reversed

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Society Proceedings

COMING MEETINGS

Amer Acad of Ophthal and Oto Laryng Pittsburgh Oct 29 30
American Association of Railway Surgeons Chicago Oct 17 19
Am Assn Obstetricians and Gynecologists Newark N J Sept. 17 19
American Electro Therapeutic Association Atlantic City Sept 11 13
American Roentgen Ray Society New York Sept. 20-22
Colorado State Medical Society Colorado Springs Sept 25 27
Delaware State Medical Society Middletown Oct 8 9
Indiana State Medical Association Evansville Sept 26-28
Kentucky State Medical Association Louisville Oct. 16-18
Medical Association of the Southwest Kansas City Oct. 15 17
Minnesota State Medical Association, St Paul Oct 10-12
Mississippi Valley Medical Association Toledo O Oct 9 11
Missouri Valley Medical Society Lincoln Neb Sept 20 21
Nevada State Medical Association Reno Oct 18 19
New Mexico Medical Society Las Cruces Oct. 4 6
Pennsylvania State Medical Society Pittsburgh Sept 24-27
Utah State Medical Association Salt Lake City Sept 12 13
Vermont State Medical Society Barre Oct. 11 12
Virginia State Medical Society Roanoke Oct 23 26
West Virginia State Medical Association Fairmont Oct 2-4
Wisconsin State Medical Society Milwaukee Oct. 3 5

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Roentgenology, New York

August IV No 8

1 *Pelvic Colon and Rectum—Roentgenologically Considered J T Case Battle Creek Mich.—p 373
2 Roentgenologic Interpretation of Accessory Sinus Variations H. J Prentiss Iowa City Iowa.—p 390
3 Practical Points on Interpretation of Accessory Sinus and Mastoid Plates F M Law New York—p 398
4 Roentgen Ray Findings in Skull in Cases of Brain Tumors with Special Reference to Porus Acusticus G L. Carr Boston—p 405
5 Roentgen Department in War Times W A Wilkins Montreal Canada.—p 414
6 Dental Roentgenography W H Mick Omaha.—p 416

Annals of Surgery, Philadelphia

August LXVI No 2

7 *Clean and Comfortable Method of Treating Erysipelas Patients. S M Milliken, New York—p 129
8 Nature of Postoperative Leukocytosis in Dog E B Krumbhaar Philadelphia—p 133
9 *Value of Leukocyte Count in Diagnosis and Prognosis of Acute Appendicitis H W Hewitt, Detroit—p 143
10 Tumors of Gasserian Ganglion, Report of Operated Case E Sachs St Louis—p 152
11 Bone Transplantation from Scapula for Defect in Skull B L Jones Walla Walla Wash—p 160
12 Value of Bone and Cartilage Transplants in Rhinologic Surgery W W Carter New York—p 162
13 Factors Bearing on Mortality in Operations for Biliary Obstruction by Calculus I T Van Beuren Jr, New York—p 169
14 *Etiologic Relations of Sequelae to Gastro enterostomy, Together with Description of Simple Operative Technic P Gronnerud Chicago—p 177
15 Postoperative Paralytic Ileus O S Fowler Denver—p 184
16 Fractures Occurring in Gold Mining Industry Study of 311 Cases J W Freeman, Lead, S D—p 193
17 Nature of Neuropathic Affections of Joints L. Eloesser, San Francisco—p 201
18 *Anatomic Substitute for Female Breast W Bartlett, St Louis—p 208

7 Clean and Comfortable Method of Treating Erysipelas Patients—The following is suggested by Milliken as making the patient most comfortable during the disease, thereby conserving his energies and perhaps hastening nature's cure The patient is cleansed and put to bed Rest is enforced during the acute fever and for two days after the temperature reaches and remains below 100 At the start calomel and salts are given and diet allowed according to the patient's appetite Fluids are forced during the fever Sedatives or stimulants are given if indicated Whenever ichthyol has been applied previously, as so frequently happens, it is removed as thoroughly as possible Then, if no wound demands local dressing, the entire region attacked by the disease is thickly dusted with powdered stearate of zinc which is reapplied as it falls or is brushed off If a wound exists, it is treated as a similar wound would be treated in the absence of erysipelas Thus the face of a patient with abscess in the eyelids is powdered freely and the eyes kept moist with small compresses renewed from a basin of cold boric acid a drop or two of 20 per cent argyrol is placed on the conjunctivae from two to five times in twenty-four hours, according to the local irritation evident If in leg cases, periphlebitis or cellulitis develops an incision is made as soon as fluctuation appears, and then wet dressings of boric acid or magnesium sulphate or dilute alcohol are applied

8 Nature of Postoperative Leukocytosis in Dog—Krumbhaar's experiments showed that the leukocytosis that followed splenectomy in dogs only differed from other postoperative leukocytoses in the somewhat slower return to normal Postoperative leukocytosis, and the lesser degrees of leukocytosis that follow narcosis and hemorrhage, Krumbhaar says are chiefly due to the summoning of new and younger forms of polymorphonuclear cells from the bone-marrow into the peripheral blood stream The appearance of 'intermediate' forms in the blood stream after operation suggests that a relationship exists between the polymorphonuclear leukocyte and so-called transitional cells

9 Leukocyte Count in Appendicitis—Hewitt points out that the polynuclear count alone is in the great majority of instances, a reliable index in diagnosis The correlated absolute and polynuclear counts are of greater value than either count taken alone especially as regards prognosis A high absolute count with a high polynuclear count means usually good prognosis (e g absolute 35 000, polynuclear 95 per cent) A high absolute count with a moderately low polynuclear (e g absolute 20 000, polynuclear 80 per cent) means usually a very good prognosis A low absolute count with a high polynuclear count (e g, absolute 7,000, with polynuclear 95 per cent.) indicates a grave prognosis (speaking generally) A low absolute count with a low polynuclear count means (e. g., absolute 7 000 with polynuclear 65 per cent) usually no infection, or that the acute condition is due to anatomic or mechanical causes, in other words, that the infection if one be present, has not stimulated the resisting powers of the body sufficiently to produce a leukocytosis

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1 See THE JOURNAL, Nov 11, 1916, p 1470

10 **Tumors of Gasserian Ganglion**—The history of Sachs' case is that in December, 1914 the patient began to have pains along the distribution of the ophthalmic division of the left fifth nerve This pain gradually spread and two months later involved all three branches and was continuous At no time was there any cessation of pain Drugs, climatic conditions, local applications in no way influenced the pain About this time the woman complained of double vision on looking to the left. Soon after this an impacted molar was removed, but afforded no relief Some months later her sphenoid and ethmoid sinuses were opened without any improvement in her symptoms The pain continued without any interruption and with great severity Stereoscopic roentgenograms showed no abnormality and none of the signs of intracranial pressure No destruction of bone in the region of the middle fossa could be made out In the region of the ganglion a smooth tumor about the size of a large cherry was exposed, which lay in a cavity in the floor of the skull about 1 cm deep It had apparently completely replaced the ganglion With great care the tumor was dissected free and in this procedure what were taken to be the third and sixth nerves were exposed on the median side of the tumor When the patient became conscious she had a complete third and sixth nerve paralysis and a complete motor aphasia with very slight weakness of the right hand The motor aphasia cleared up at once and had completely disappeared on the fourth day after operation The grip was normal on the second day By the ninth day there was no trace of the third nerve paralysis and the sixth nerve paralysis improved steadily so that finally a month after operation there was no longer any double vision Another unusual feature and one difficult to explain was that after the third nerve recovered, the pupil which had been dilated (third nerve paralysis) became contracted In about six or seven weeks the patient returned complaining again of severe pains The twelfth nerve paralysis was still present The tumor was again attacked, but was found quite unoperable A small piece was removed for diagnosis and showed the same histologic picture as the original tumor —endothelioma

11 **Bone Transplantation from Scapula for Defect in Skull**—A defect in the skull, measuring approximately 3 cm by 5 cm, was covered by Jones by placing over it a piece of the wing of the left scapula slightly larger than the opening in the skull

14 **Etiologic Relations of Sequelae to Gastro-Enterostomy**—Gronnerud does not use clamps and his suture material is catgut He describes his technic as follows The hand is placed on the anterior stomach wall, with the omentum and transverse colon gathered up between the thumb and forefinger pushing the stomach against the mesocolon The mesocolon is now opened with a blunt forceps, and the tear extended until an elliptical opening about 2½ inches long results, the edges are then attached to the posterior wall of the stomach by four stitches, the end stitches being left long and used as temporary guides If the mesenteric attachment of the bowel is far enough to the right bring the bowel straight up in prolongation of the duodenum, if not, turn the bowel from left to right, otherwise a kink at the duodenojejunal junction will result, with the probability of obstruction The bowel is now brought up into juxtaposition with the stomach and guides placed at each end, the first guides being now cut An over-and-over Lembert suture is then used The assistant now exerts steady traction on the guides, thus preventing leakage, and the stomach and bowel are opened The same suture is used to whip over and over with a through-and-through stitch, so as to coaptate the mucous surfaces With a Cushing stitch, the anterior stomach and bowel walls are coaptated, and the operation finished with a Lembert suture, making two rows of sutures all the way around Number 1 pyoktanin catgut is used exclusively

17 **Nature of Neuropathic Affections of Joints**—Eloesser found that bone and joint lesions corresponding to those found in tabes dorsalis may be induced experimentally in the limbs of cats by severing the posterior nerve roots (the sensory fibers) leading from the limb Severing the posterior roots causes no atrophy of the bone Tabic fractures and arthropathies have been produced in healthy animals, hence they cannot be ascribed primarily to lues or other infectious causes The course of a deforming arthritis is not characteristically altered by the addition of an analgesic factor, hence the cause of the Charcot joint is not to be sought in a simple deforming arthritis occurring in a tabetic. Nothing in these experiments gives proof of the existence of trophic nerves Of three animals whose joints were subjected to operative trauma after having previously been rendered anesthetic by resection of posterior roots, all rapidly developed Charcot lesions Trauma in a limb rendered anesthetic and analgesic experimentally leads to grotesque lesions of the bone and joints, which are in every way the counterparts of tabic fractures and arthropathies, trauma and lack of the warning sense of pain are the cause of most tabic bone and joint lesions

18 **Anatomic Substitute for Female Breast**—The operation described by Bartlett is most frequently indicated in cases of chronic fibrocystic mastitis, which is generally admitted to be a precancerous condition, hence Bartlett shells out the entire gland-bearing area with the cautery, leaving the skin covering intact. Cosmetic considerations have led him to fill out the defect with fat taken from other portions of the patient's body The various steps of the operation are given in detail, namely 1 With patient in the sitting posture, the affected breast is lifted and a mark made in the fold which will be hidden by the pendent organ when it is allowed to assume its normal position 2 Patient is covered with two sterile sheets, attached to the skin in such a manner as to expose two areas, one revealing the affected breast, the other, the lower abdomen or thigh on the same side 3 A crescentic incision is made below the breast following the line marked out in Step 1 The breast is lifted off the chest wall, all attachments being divided with the cautery and the pocket filled with a pack 4 The skin covering the gland is peeled back with the cautery, while downward traction is exerted on the mass to be removed 5 From the anterior abdominal wall, the outer aspect of the thigh, or the buttocks, enough subcutaneous fat is removed to constitute a mass approximately 50 per cent larger than that which has been extirpated, thus allowing for shrinkage which always takes place This is to be stuffed into the breast defect and allowed to conform to its new surroundings The operation has been performed successfully on six patients

Archives of Internal Medicine, Chicago

August, XX No 2

19 *Error in Electrocardiogram Arising in Application of Electrodes H E B Pardee, New York—p 161
20 *Studies in Protein Intoxication Blood Coagulation H F Shattuck New York—p 167
21 *Emetin Diarrhea—Clinical and Experimental A R Kilgore and J H Liu, Shanghai, China—p 178
22 *Oxidase Reaction of Cells in Normal and Leukemic Blood H Rosenthal, New York—p 184
23 *Relation of Pellagra to Location of Domicile in Spartan Mills, S C, and Adjacent District J F Siler, P E Garrison and W J MacNeal, New York—p 198

19 **Error in Electrocardiogram Arising in Application of Electrodes**—The error discussed by Pardee consists in the fact that when a constant difference of potential is applied at two points of the circuit containing the galvanometer and the patient, the resulting deflection of the string takes the form of a quick jump, as quick as the instrument can make, followed by a slow partial return toward the base line The return takes the form of a curve and has a duration of from 0 1 to 0 4 second in different instances, being short when the overshoot is small, longer when it is large When the string reaches this new level the deflection remains constant, the movements due to the heart's currents being superposed on this new base line as they were on the former one The overshooting and slow return are usually evident to the eye of the observer in the process of standardization which is carried out before taking each lead of the electrocardiogram To avoid this source of error the most important measure has been found to be the application of a hot bandage The salt solution should be hot, preferably about 105 F, so that it

stings the hand of the person applying the bandages Of lesser importance has found to be a thorough rubbing and wetting of the skin of the extremity before the bandage is applied This alone will not usually suffice, but is an important accessory measure

20 Studies in Protein Intoxication—Shattuck studied the coagulation time of the whole blood the prothrombin time and antithrombin content in two cases of serum sickness following the injection of antipneumococcus serum in cases of lobar pneumonia and cases of urticaria before and after treatment with autogenous or heterogenous serum The blood of patients suffering from serum sickness showed a marked delay in the coagulation time of the whole blood and of the prothrombin time during the serum sickness, with a later fall to nearly, but not entirely normal figures for both after the disappearance of the serum sickness The results with the antithrombin content were inconclusive Studies of the blood of patients suffering with chronic urticaria showed a delayed coagulation time and prothrombin time in four out of five cases with an approach to normal figures after the patients had been treated intravenously with autogenous or heterogenous serum in three cases out of four

21 Emetin Diarrhea.—Three cases are reported by Kilgore and Liu in which the diagnosis of emetin diarrhea produced in the course of treatment for amebic dysentery, is reasonably certain Recovery was prompt on discontinuing the emetin The authors have seen a fourth case terminating fatally, in which the same diagnosis was made but have not reported this case in detail on account of failure to secure a necropsy All of these cases were in children and all had received doses considerably larger than would be proportionate on a basis of 65 mg (1 grain) for an adult This fact is especially interesting in view of the opinion not infrequently held that children are more resistant to emetin than adults The authors give doses of 65 mg (subcutaneously or intravenously) to adults and to graduate doses for children proportionately, watching carefully for any increase in the diarrhea which might be due to emetin Experiments of others and those reported by Kilgore and Liu furnish abundant evidence of the tendency of emetin to produce in dogs a hemorrhagic gastro-enteritis with hemorrhages in the lymph glands spleen, kidneys, thymus, etc., ultimately resulting in death even if the emetin be stopped as soon as definite symptoms are observed

22 Oxidase Reaction of Cells in Normal and Leukemic Blood.—Rosenthal says that morphology, with good polychromatic staining of the blood cells, is of greater importance in the identification of the leukemias than the oxidase reaction.

23 Relation of Pellagra to Location of Domicile—The studies recorded in this paper are said to support the authors' previous conclusion that pellagra is an infectious disease which spreads slowly, attacking only a small proportion of the population residing in the immediate vicinity, and further, that its spread is especially favored by insanitary methods for the disposal of human wastes

Archives of Pediatrics, New York

July XXXIV No 7

24 Acidosis in Infancy and Childhood. A. D Smith Brooklyn—p 483
25 *Etiology of Mongolian Imbecility C. Herrman New York.—p 494
26 *Acute Ileocolitis in Infancy J Aikman Rochester—p 504
27 *Deficient Bone Development of Congenital Origin C J Bloom R. E. Stone and A. Henriques New Orleans—p 512
28 Heat and Infant Mortality C C DuBois Warsaw Ind—p 516

25 Etiology of Mongolian Imbecility—Herrman is of the opinion that there is no positive evidence that worry, emotional shock, illness during pregnancy or congenital syphilis are important or essential factors in the causation of mongolian imbecility The evidence that mongolian imbecility is a unit character and recessive, although not conclusive, is regarded as being suggestive

26 Acute Ileocolitis in Infancy—Fifty-four cases of ileocolitis are analyzed by Aikman. Twenty-seven were under 6 months of age, eight between 6 and 12 months, and twelve between 1 and 2 years, and all occurred in the summer or early fall Few give a history of any previous diseases There were but four breast-fed children in the series and nine fed on modified milk Fourteen had been fed on condensed milk formulas previous to admission and several on barley water mixtures of little or no food value for a considerable length of time Insanitary home conditions, poverty, and general carelessness in food preparation acted as etiologic factors The total mortality for the series was 33 3 per cent The younger the child the worse the prognosis A child under 6 months of age who is poorly nourished and has been fed on condensed milk has very little chance for recovery if his temperature is over 102 F if he is vomiting, and has eight liquid green stools with much mucus and a little blood daily, even if the pulse is slow and the abdomen shows nothing He has no chance if he is having convulsions The duration of the cases studied averaged fifteen days, those recovering were sick about three weeks and those who died averaged nine days If the child survives the first week, Smith says, his chances for recovery are much better This series demonstrated the danger of infection and also that the convalescing child may infect others especially younger children This makes prophylactic measures of greatest importance It is best to omit all milk from the diet for a few days As a substitute give cereal water with or without sugar Sugar should be omitted if the stools are of a frothy character Barley water is used by many but rejected by a few Fresh weak tea has considerable value as a substitute for milk The returning to a milk diet should be done gradually and carefully, first adding sugar later skimmed milk and then whole milk One of the commonest faults is to give too large feedings Very small amounts should be used frequently especially if there is vomiting Bismuth subnitrate in 10-grain doses, precipitated sulphur, 1 grain, and salol may be of value Dover's powder or paregoric is also used Some claim that small doses of castor oil will help to control the diarrhea Serums are of little value and bulgaricus bacillus cultures cannot be depended on in very many cases Local treatment consists of high rectal irrigations given through a No 25 French catheter Large quantities, a gallon or more, may be used if a free return flow is allowed One or two irrigations a day are enough and they should be stopped if there is an increase in the number of stools The after-care consists of careful supervision of the diet, observation of the stools and frequent records of the temperature.

27 Deficient Bone Development.—The authors report one case of congenital absence of condyles of the femur (syphilis) and two cases of congenital absence of coccyx and congenital backward deviation and shortening of coccyx

Boston Medical and Surgical Journal

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29 Industrial Benzol Poisoning in Massachusetts T F Harrington, Boston—p 203
30 Essential Shrinking of Conjunctiva in Acute and Chronic Pemphigus Report of Two Cases. F A Conlon Lawrence.—p 206
31 *Intestinal Adhesions and Peritoneal Bands in Epileptics H Caro Palmer—p 208
32 Comparative Study of Feeblemindedness and Psychopathic Personality Among Offenders in Court V V Anderson, Boston—p 210
33 Hearing Tests from Practical Standpoint G L. Richards Fall River—p 213
34 Epidemic of Dysentery at Boston State Hospital Due to Member of Paratyphoid Enteritidis Group M E. Morse and G Hyron, Boston—p 216

31 Intestinal Adhesions and Peritoneal Bands in Epileptics—In a review made by Caro of 775 necropsy protocols of patients in a general hospital, the incidence of intestinal adhesions and peritoneal bands was found to be relatively the same (18.3 per cent.) as in a series of 280 necropsies on epileptics Hence, Caro believes that the constipation of epileptics cannot be said to be due to factors differing from those usually considered in the colonic stasis of other patients Intestinal adhesions and peritoneal bands are due to congenital defects, acute inflammatory processes, or mechanical causes Such processes are no more frequent in epileptics than in nonepileptics Intestinal anomalies are not present in any greater proportion in epileptics than in other persons

Colorado Medicine, Denver

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35 Chronic Appendicitis and Its Gastric Relations H A Black, Pueblo —p 213
36 Rupture of Abdominal Viscera Due to Nonperforative Force W T H Baker, Pueblo —p 216
37 Social Health Insurance J M Shapiro, Denver —p 220
38 Cystoscopy in Insane P Work, Pueblo —p 225

Delaware State Medical Journal, Wilmington

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39 Ethyl Chlorid Anesthesia J S Keyser, Wilmington —p 5

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42 Hypopyon Keratitis R B Hopkins, Milton —p 6

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43 New Treatment for Status Epilepticus W Held, Chicago —p 3

Iowa State Medical Society Journal

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46 Review of Recent Literature on Congenital Syphilis F S Clarke, Omaha —p 301
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48 Treatment of Acute Tonsillitis by Enucleation I S Buzard, Waterloo —p 305
49 Recent Ideas of Iridocyclitis with Special References to Focal Infection, Report of Cases J E Reeder, Sioux City —p 305
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52 Blood Fat in Domestic Fowls in Relation to Egg Production D E Warner and H D Edmond —p 281
53 Tritico Nucleic Acid B E Read and W E Tottingham, Baltimore —p 295
54 *Proteoclastic Tissue Enzymes of Spleen M Morse, Chicago —p 303
55 Comparative Metabolism of Certain Aromatic Acids C P Sherwin, New York —p 307
56 Studies on Bioluminescence Mechanism of Production of Light During Oxidation of Pyrogallol E N Harvey, Princeton, N J —p 311
57 Structure of Purine Mononucleotides W Jones and B E Read, Baltimore —p 337
58 Similarity of Action of Salts on Swelling of Animal Membranes and of Powdered Colloids J Loeb, New York —p 343
59 *Metabolism of Sulphur Influence of Small Amounts of Cystine on Balance of Nitrogen in Dogs Maintained on Low Protein Diet H B Lewis —p 363
60 *Nutrition Investigations on Cottonseed Meal A E Richardson and H S Green, Austin, Texas —p 379
61 Availability of Energy of Food for Growth C R Moulton, Columbia, Mo —p 389
62 *Chemical Differentiation of Central Nervous System Relative Amount of Sheathing Substance in Corpus Callosum and Intradural Nerve Roots (Man and Dog) W Koch and M L Koch —p 395
63 Effect of Different Salts on Ammonia Formation in Soil G P Koch, New Brunswick, N J —p 411
64 Behavior of Chickens Restricted to Wheat or Maize Kernel E B Hart, J G Halpin and H Steenbock, Madison, Wis —p 415
65 *Studies in Calcium and Magnesium Metabolism Effects of Base and Acid M H Givens and L B Mendel, New Haven, Conn —p 421
66 *Id Effect of Diets Poor in Calcium M H Givens, New Haven, Conn —p 435
67 *Id Effect of Fat and Fatty Acid Derivatives M H Givens, New Haven, Conn —p 441
68 Relation of Quality of Proteins to Milk Production E B Hart and G C Humphrey, Madison, Wis —p 445
69 *Study of Effect of Hydrochloric Acid on Mineral Excretion of Dogs R L Stehle, Philadelphia —p 461
70 *Relation of Epinephrin Hyperglycemia to Decreased Alkali Reserve of Blood J P Peters, Jr, and H R. Geyelin, New York —p 471

54 **Proteoclastic Tissue Enzymes of Spleen**—Although other investigators have shown that an enzyme or enzymes exist in the spleen, capable of hydrolyzing peptone and also fibrin, Morse found that the proteins of the spleen itself, however, autolyze only in neutral or acid, not in alkaline solution The most rapid autolysis was observed in the most acid solution tested Therefore from the standpoint of necrosis, the α-protease of Hedin can scarcely be operative since there is no evidence that it affects native proteins Morse suggests that it is probable that the α-protease of Hedin is not an autolytic enzyme, but rather a heterolytic one, resident in the white blood cells, for such an enzyme has been described, definitely, for such cells

59 **Metabolism of Sulphur**—Lewis found that the addition of small amounts of cystin to the diet of dogs on a low protein diet diminished the loss of nitrogen from the body and favorably influenced the nitrogen balance This is interpreted to be the result of a specific demand for cystin for metabolic purposes, since tyrosin and glycocoll added to the diet under like conditions of experimentation did not diminish the nitrogen loss or influence the condition of nitrogenous equilibrium

60 **Nutrition Investigations on Cottonseed Meal.**—According to Richardson and Green, 20 per cent of the water extract of cottonseed flour dried on starch, equivalent per gram to 2 5 gm of cottonseed flour, i e, 50 per cent cottonseed flour in the diet, contains sufficient water-soluble food accessory for normal growth Four and thirty-five hundreths per cent. of the ether extract of cottonseed flour equivalent per gram to 11 5 gm of cottonseed flour, i e., 50 per cent. cottonseed flour in the diet, does not contain sufficient fat-soluble food accessory for normal growth, but 12 per cent of the ether extract appears quite as efficient in supplying enough of the fat-soluble accessory for normal growth as does an equivalent amount of butter fat Eighteen per cent. cottonseed protein when supplied with adequate amounts of all other necessary nutritive factors induces practically normal growth in the male rat, and better than average growth in the female, and fairly normal reproduction, with high mortality among the second generation At the age of 148 days the male of the second generation is about four-fifths average size and the female slightly under size Twelve per cent. cottonseed protein does not induce perfectly normal growth On this diet one female has borne three young, all of which are alive at the age of 269 days, although below average size Normal growth has not been obtained on 9 per cent. cottonseed protein but at the age of 155 days one animal, No 310, has borne a fine looking litter of eight young, all of which she devoured Very little growth has been obtained with 6 per cent. protein, the average gain in weight during 108 days being 8 to 9 gm With only 4 per cent cottonseed protein rats have fallen off in weight when first placed on this diet, but have almost successfully maintained their weight for fifty days thereafter

62 **Chemical Differentiation of Central Nervous System.**—The Kochs found that the quantity of the sheathing substance appears to be nearly the same in the callosum fibers of man and of the dog Moreover, the amount of sheathing substance of the fibers of the intradural nerve roots is in the dog like that found in the callosum, although a higher percentage of phosphatide and a lower percentage of water-soluble phosphorus appear to be characteristic for the nerve roots in both man and the dog In man, however, the intradural nerve roots appear to have somewhat less sheathing substance, possibly a species difference, possibly due to some other cause The approximate similarity in the amount of sheathing substance formed on the peripheral and on the central nerve fibers (though the latter are devoid of neurilemma) in two of the higher mammals, and the fact that the amount of sheathing substance in the callosum of man is similar to that in the callosum of the dog—and in the case of the intradural nerve roots not so very different—are the large results to which attention is especially directed

65 **Studies in Calcium and Magnesium Metabolism**—The observations made by Givens and Mendel demonstrate that the administration of base or acid produced no significant effect on the balance of nitrogen, calcium, magnesium, and phosphorus in the dog Administration of hydrochloric acid increased the urinary excretion of calcium and thereby altered the relation of calcium to magnesium in the urine

The calcium contained in milk was more effective than soluble calcium lactate in producing calcium retention Administration of large doses of alkali bicarbonate to a human diabetic did not decrease the urinary output of calcium.

66 **Effect of Diets Poor in Calcium**—From the data submitted by Givens it is evident that diets poor in calcium are not conducive to positive calcium balance even when an abundance of nitrogenous food is available

67 **Effect of Fat and Fatty Acid Derivatives**—Here Givens shows that poor utilization of fats or fatty acids may increase the excretion of lime in the feces and prevent the storage of calcium even when the calcium intake is comparatively abundant

69 **Study of Effect of Hydrochloric Acid on Mineral Excretion of Dogs**—The administration of hydrochloric acid by mouth to the dog caused an increased excretion of calcium and magnesium as well as of sodium and potassium but in the case of the latter a compensatory retention makes the loss apparent rather than real If Stehle says an analogous condition holds in human diabetes the resulting calcium loss may be something to take into consideration in the treatment of diabetic patients in whom the excretion of hydroxybutyric acid has reached a significant figure

70 **Relation of Epinephrin Hyperglycemia to Decreased Alkali Reserve of Blood**—The hyperglycemia produced by Peters and Geyelin by subcutaneous injection of epinephrin in three cases of diabetes and two normal individuals was accompanied by simultaneous diminution of the alkalinity of the blood This taken in conjunction with other experimental evidence strongly suggests that decreased alkalinity of the blood plays a very important role in the production of hyperglycemia of this type Vasoconstriction as demonstrated by peripheral hypertension was not of prime importance in producing the changes noted

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73 Private Hospital as Investment T A Jones, Hutchinson —p 216

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95 Diagnosis of Early Cancer of Stomach A Bassler, New York —p 252
96 Diagnostic Teeth P W Roberts New York —p 256
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112 Medical Department of United States Army General Organization of Army W W Reno —p 317
113 Comment on Exemption Boards J M Mabbott, New York —p 318

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115 *Present Status of Vaccine Therapy W B Stone Schenectady —p 357
116 *Present Status of Drug Therapy W Coleman New York City —p 361
117 *Present Status of Physiologic Therapy J J Levy, Syracuse. —p 363
118 *Early Diagnosis of Poliomyelitis. W D Ayer, Syracuse —p 368
119 Defective Nutrition in Early Life E H Bartley, Brooklyn —p 375
120 Hospital Surgeon His Economics and Standardization of His Work W L. Duffield Brooklyn —p 379
121 *Complete Avulsion of Scalp F H Flaherty Syracuse —p 382
122 Present Food Problem E S Haswell, Albany —p 384

114 **Present Status of Serum Therapy**—Cole presents his conception of the present state of serum therapy, the advantages as well as the pitfalls associated with it He says that if we disregard all the chaff and consider only those forms of serum therapy in which the value is well proved we must believe that this form of therapy has been of the greatest good to mankind He advises that the practicing physician should keep close to earth and employ only that which has been tried and found to be of value

115 See The Journal, June 9 1917, p 1777

116 See The Journal, June 2 1917, p 1656

117 See The Journal June 2 1917 p 1656

118. **Early Diagnosis of Poliomyelitis***—One hundred and two acute cases are analyzed by Ayer Fever was present in every case. The average temperature observed was 102.2 the highest range being 104 8 Headache was noticed in all but one of the cases Rigidity of the neck was found in ninety-eight cases and was quite characteristic. Drowsiness was found in ninety cases Tremor and muscular twitching was noted in forty-two cases and described by the parents in twenty others Vomiting was described in the attack, in forty-one cases In thirty-nine cases constipation was obstinate, resisting all medication Difficulty in urination was present in sixty cases, sweating in twenty-two cases This accompanied the severer types, and was noted in ten of the cases going on to bulbar involvement. No distinctive

disturbances of the reflexes were observed In twelve early cases they were exaggerated, in twenty-nine the patella, abdominal or cremasterics were absent The pupillary reflex was retained in all cases Diplopia was present in eight cases The kernig was not constant—a definite kernig was observed only in eighteen instances Pain was a finding of indefinite character, pain in the back and limbs being mostly complained of A persistently severe pain in one or more extremities often preceded the appearance of paralysis in that location Redness of the throat and heavily coated tongue were common findings Of the forty-two cases developing paralysis, eleven were of the true bulbar type, ten of whom died from respiratory paralysis Of the thirty remaining cases fourteen showed paralysis of an entire extremity or more, with five deaths Six cases developed facial paralysis and ten show partial and slight involvement of an upper or lower extremity Ayer believes that the early stage of poliomyelitis is characterized by a distinct clinical picture and that, in the presence of an epidemic, any case presenting with headache, fever and rigidity of the neck should be considered a case of poliomyelitis until proved otherwise

121 See The Journal, June 9, 1917, p 1778

Northwest Medicine, Seattle

August XVI No 8

123 Medical Man in Military Service C S Moody, Hope, Ida —p 223
124 War Experiences in England and France (Concluded) R D Forbes, Seattle, Wash —p 227
125 Clinical Methods for Studying Kidney Functions C S Wilson Tacoma, Wash —p 231
126 Discussion of Urologic Cases H Partridge, San Francisco —p 234
127 Practical Hints in Urinalysis. E L Whitney, Portland, Ore. —p 236
128 Some Points in Treatment of Acute Gonorrhea by General Practitioner L G Johnson, Marshfield, Ore —p 238

Tennessee State Medical Association Journal, Nashville

August X, No 4

129 Symptomatology and Diagnosis of Empyema of Accessory Sinuses of Nose H Wood Nashville —p 135
130 Treatment and Prognosis of Catarrhal and Suppurative Inflammations of Nasal Accessory Sinuses H Ezell, Nashville —p 139
131 Fecal Fistulas G R West, Chattanooga —p 149
132 *Non Specific Measures in Treatment of Certain Infections J O Manier, Nashville —p 153
133 Chronic Indurative Pancreatitis Pancreatectomy Presentation of Specimen W B Burns, Memphis —p 160
134 Cystoscope in Diagnosis and Treatment of Disease of Urinary Tract. J E Hall, Nashville —p 164

132 See The Journal, April 28, 1917, p 1286

FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

British Journal of Surgery, Bristol

July, V, No 17

1 Interrelator Between Roentgenography and Surgery of Gunshot Wounds of Head H E Gamlen and S Smith —p 17
2 *Repair of Injuries to Skull by Thin Perforated Silver Plates A B Mitchell —p 40
3 *Reparation of Cranial Defects by Means of Cartilaginous Grafts. H L. W Woodroffe —p 42
4 *Septic Peritonitis Treatment by Cecostomy A J Nyulasy —p 53
5 Ulceration of Colon in Neighborhood of Gunshot Wounds J S Dunn and H Drummond —p 59
6 *Early Treatment of Gunshot Fractures of Thigh C M Page and A B Le Mesurier —p 66
7 Splints for Treatment of Gunshot Fractures of Long Bones J H Pringle —p 100
8 Carrel Treatment of Wounds G Barling —p 116
9 Treatment of Hemorrhage Caused by Gunshot Wounds of Face and Jaws V H Kazanjian and H Burrows —p 126
10 Oral and Plastic Surgery and Prosthetic Appliances A. C. Valadier and H. L Whale —p 151
11 Case of Myeloma of Tendon Sheath T C Pybus.—p 172
12 Case of Thrombosis of Considerable Portion of Superior Mesenteric Vessels without Any Discoverable Cause O L. Addison —p 173
13 Localized Traumatic or Direct Gangrene A W Nuthall —p 175
14 Case of Fibroid Tumor of Stomach E W H Groves —p 176
15 Case of Intraperitoneal Perforation of Ulcer of Urinary Bladder H S Newland and H Rayson —p 177

2 **Repair of Injuries to Skull by Thin Perforated Silver Plates**—For some time past Mitchell has been in the habit of repairing gaps in the skull by the use of very thin perforated silver plates The silver is rolled out a little thinner than an ordinary visiting card, and is then punched with holes one eighth of an inch in diameter, as close together as possible. This is said to have the following advantages 1 Being very thin, the plate can be readily adapted to the convexity of the skull 2 The perforations have the advantages that they lighten the plate, they admit of the escape of blood or other fluid, so as to avoid compression by accumulation between the plate and the dura or brain, and they provide a simple means of fixing the plate in position The plate is applied as follows A large flap of scalp is turned down The opening in the skull is explored, any foreign body is removed, adhesions are freed, and bleeding is arrested The periosteum is now carefully raised from the skull for about half an inch all round the gap The plate, cut the necessary size and shape (half an inch in diameter larger than the opening it is desired to close), is now slipped under the reflected periosteum and fixed in position by a series of catgut sutures which, by the aid of a fully curved needle, are carried through the periosteum and out through any of the perforations in the plate which are most convenient In this way the plate is securely fixed in position and cannot slip The scalp flap is now sutured in position, and a drainage tube inserted at the most dependent angle for twenty-four hours—otherwise a hematoma is very likely to form Needless to say the most rigid asepsis must be observed

3 **Reparation of Cranial Defects by Means of Cartilaginous Grafts**—The grafts used by Woodroffe are taken from the sixth, seventh and eighth costal cartilages, and for convenience are cut from the same side as the head wound The usual incision is one parallel to and a little above the costal margin A vertical incision, two finger-breadths outside the edge of the sternum gives equally good access, can more easily be extended if necessary, the hemorrhage is less, and it has the great advantage of splitting instead of cutting across the upper fibers of the rectus The cartilages having been thus exposed, shavings are taken of about half their thickness Care should be taken not to cut through the entire thickness of a fixed cartilage Each graft, as cut, is dropped into warm saline solution The chief difficulty is to keep these from slipping A very simple and rapid method is that of Villandre One end of a fine catgut stitch is passed through the pericranium, and tied It is then passed through the pericranium on the other side of the gap, and taken backward and forward in a zigzag manner till the hole is covered in with a trellis In the case of a very large gap it is wise to supplement this network by a second, at right angles to it, and to insinuate the grafts between the two layers This gives a small chamber bounded by the dura, the edges of the skull and the trellis, into which the grafts can be slipped with forceps It is advised to apply the perichondral surface to the dura, in order to avoid adhesions, in any case it is easier, as the grafts curl when cut, the perichondrium being in the concavity They should overlap everywhere, and may well be doubled, as some slight recession always takes place, and those cases give the best final result which, at the end of the operation, show a slight boss When the frontal or temporal regions are involved, it is well carefully to study the sound side before operating, it is then possible to restore almost exactly the symmetry of the forehead

4 **Septic Peritonitis Treatment by Cecostomy**—In Nyulasy's series of cases, as soon as the opening into the cecum was made, the feces usually came out under high pressure, in one instance rising up in a stream over 8 inches high He suggests, therefore, that if the cecum had contained this fluid before it had been opened, we may reasonably assume that the fluid would have been forced along the colon to the anus Since this had not happened, it seems likely that these feces had not yet reached the cecum, but were held back in the ileum, and that the opening of the cecum relieved the obstruction He suggests, therefore, that the

efficacy of cecostomy may depend on a possible power to relax ileocecal spasm and thereby release virulent feces pent up in the small intestines

6 **Early Treatment of Gunshot Fractures of Thigh**—The authors are convinced that the Thomas knee splint is the most suitable apparatus available for use in the transport of cases of fracture of the femur The same splint can give excellent results as regards alinement and length in fractures in the middle third of the femur Good alinement cannot be attained by the use of the Thomas splint in the case of fractures occurring in the lower third of the femur, but if the splint be modified by bending it at the knee joint level to form a skeleton double inclined plane, the results are good Fractures in the upper third of the femur can generally be well treated in a Hodgen splint Adhesive extension attachments are satisfactory for most cases and are well suited to the conditions of active service Transfixion of the bone is useful in special cases and when the procedure is carried out at a distance from an infective focus Cases reported demonstrate the importance of periodical prophylactic injections of antitetanic serum

British Medical Journal

August 4 II No 2953

16 *Investigation of Significance of Disorders and Diseases of Heart in Soldiers. T C. Allbutt—p 139
17 *Gunshot Injuries of Chest J R Bradford—p 141
18 Factors in Field Ambulance Work Which Help Work in Casualty Clearing Stations K M Walker—p 146
19 Dermatitis Due to Explosives Used in Air Raids J H Sequeira—p 148
20 Statistics of Defective Vision Obtained at Recruiting Medical Board C F Harford—p 149
21 *Method of Supination by Plaster P J Verrall—p 150
22 Simple Means of Ascertaining if Sterilizing Hut Is Hot Enough to Destroy Lice and Nits in Clothing or Blankets A Bacot—p 151

16 **Investigation of Significance of Disorders and Diseases of Heart in Soldiers**—One main result of Allbutt's investigation is to strengthen the opinion which, before these researches were established, was gaining ground, namely, that 'heart strain," a phrase a few years ago in common use and application, is a rare event. The fretful heart, known as the soldier's heart" is not cardiac strain For the term soldier s heart" Allbutt suggests ponopalmosis a compound word which means palpitation on effort Heart strain, Allbutt says is generally a result of some infection, is relatively infrequent and does not constitute the bulk of the cases invalided from the army as "D A H" In "D A H" the form of the heart is unaltered and the dyspnea seems not to depend directly on the heart A thrill must be very carefully placed and timed for in many of these irritable hearts a systolic thrill can be felt, perhaps in most of them if some effort be made just before examination It is short but often very distinct to the touch It is not felt about the base of the heart, and is therefore not due to a slack aorta How the thrill is generated it is not easy to say Very often in these cases a systolic murmur at the apex is recorded, an alteration of the first sound more like a prolongation of it with some change of quality than like a definite murmur of mitral regurgitation Allbutt suggests that in these cases the papillary muscles and their chords may be a trifle slack, so that the mitral sheets shiver a little in the current, as a sail shivers when the boat gets near the wind Such a quaver would be transmitted to the ventricular wall, and thence to the thoracic. In such a condition there might well be a minute, inconstant, and insignificant regurgitation also, though ordinarily in mitral regurgitation there is no thrill.

17 **Gunshot Injuries of Chest**—Hemothorax is the most common rsult of a chest wound, both pneumohemothorax and pneumothorax are relatively rare, and in a series of 328 cases of gunshot wounds only eight cases of the former and four cases of the latter were observed by Bradford In sterile hemothorax, Bradford says, if the amount of the bloody effusion is small, there is no need for any special active treatment, such cases do well, although their progress may sometimes be slow If the effusion is at all large in amount—that is, the dulness reaching above the angle of the scapula—the fluid should be removed by aspiration about the end of the first week after the wound In a few cases earlier aspiration may be required to relieve distress arising mechanically from the amount of fluid present. Aspiration with oxygen replacement is better than simple aspiration, all the fluid present in the chest can be removed at one sitting Free drainage is required in all cases of infected hemothorax, and this should be provided as early as possible as the organization of the deposit of lymph on the visceral pleura produces a great impediment to the rapid expansion of the lung after the removal of the fluid, and this organization proceeds rapidly in cases where delay in operating takes place The inflammation in the pleural sac and the septic clots must be treated by the local application of some efficient antiseptic If the cavity is treated by washing out, care must be taken to avoid arising the intrapleural pressure Septic clots, often of considerable size, can be removed with success by this method Care must be taken in selecting the site for excision of a portion of rib to provide really efficient drainage, and the fact that the diaphragm is abnormally high in these cases must be borne in mind as otherwise the opening will be made too low down In some instances the wound of entry or exit communicates more or less directly with the pleural cavity and fluid in variable quantity drains from it, this drainage is rarely satisfactory or sufficient and such cases require a counter opening in a suitable situation to really drain the effusion

21 **Method of Supination by Plaster**—The plaster is applied over felt (previously stitched together around the limb) and consists of two parts A few temporary stitches hold the two portions of felt together while the plaster is applied, and are then cut The upper piece reaches from the middle of the arm to the middle of the forearm, the lower from the middle of the forearm to just above the heads of the metacarpal bones, a hole being left for the thumb to protrude On either side of the interval between the two portions pieces of metal are incorporated in the plaster These consist of metal strips ¾ inch wide and 3 inches long one inch of which is turned up at a right angle and the other two inches notched to ensure firmer incorporation in the plaster, the notched corners being turned up to form spikes One of these is fixed into the radial and another into the ulnar side of the lower part and two other pieces are similarly inserted into the inner and outer aspects respectively of the upper part When the plaster is firmly set (next day) pieces of rubber tubing are stretched round these two pairs of metal pieces and gradually tightened from day to day, supination being complete when the two pairs are opposite one another If desired, pronation can be obtained by reversing the process It is necessary to put extra felt padding over the head of the second metacarpal, over the lower end of the radius, and over the ulnar border of the hand When supination is complete the arm should be kept in this position for at least three weeks to prevent relapse before massage is begun This method is suited to cases of adhesions in the upper and lower radio-ulnar joints, fractures of the forearm where there is danger of cross union, and disability due to contracture of soft parts

Edinburgh Medical Journal

August XIX No 2

23 Need of Future Efficiency Based on Moral Responsibility W Russell—p 78
24 Etiologic Classification of Deformities of Female Pelvis. D B Hart—p 82
25 Nasal Neuroses Regarded as Sensitizations of Respiratory Tract Résumé of Recent Literature. J S Fraser—p 91
26 Cases of Vascular Injury F C Pybus—p 108
27 Arteriovenous Aneurysm of External Iliac Artery N Maclay—p 112

Medical Journal of Australia, Sydney

July 14 II No 2

28 Occurrence of Fractures J G Edwards—p 25

July 21 II No 3

29 Early Operative Treatment of Chronic Discharge from Middle Ear R. G Brown—p 43
30 Relationship of Opticians to Profession and to Public. J L. Gibson—p 47
31 Unusual Case of Occupation Neurosis. J C Verco—p 50

Tropical Medicine and Hygiene, London

August 1, XX No 15

32 *New Thrush Parasite A Pijper —p 169
33 Tropical Diseases Met with in Balcanic and Adriatic Zones (Continued) A Castellani —p 170

32 **New Thrush Parasite**—Pijper cites the case of a child of four months, in very bad condition due to underfeeding and exposure to cold, exhibiting the usual symptoms of thrush, but for the color of the patches These were distinctly not white or whitish, but yellowish A whole patch was taken off (slight bleeding followed) and planted Better care and alcoholic paintings soon restored the child to health The cultures showed that the parasite causing this sore throat was the fungus known as *Monilia rugosa* Castellani

Archives des Maladies du Cœur, Paris

June X No 6 pp 257 304

34 *Device to Ensure Precision in Heart Tracings C Laubry and A Mougeot —p 257
35 *Aviator's Sickness G Ferry —p 275
36 *Shrapnel Ball in Left Iliac Region Passes through Inferior Vena Cava to Right Auricle. C Pezzi —p 285

34 **Precision in Heart Tracings**—Laubry and Mougeot give an illustrated description of the sliding gage attachment which records with mathematical accuracy the different phases of the heart action They expatiate also on the points to be learned from this greater precision in the findings

35 **Aviator's Sickness**—Ferry has been studying on others and on himself the cardiovascular reactions in aviation He here describes in detail the cardiovascular reactions observed in an aviator of 33 who had been discharged from the army on account of symptoms of Bright's disease These had subsided under rest and dieting, all except the albuminuria The findings in this case indicate that 1 gm albumin is the extreme limit permissible, even in a young aviator, and only then when the kidneys seem to be behaving well otherwise If the kidney functioning is defective, whatever the amount of albumin, the candidate should be rejected

36 **Projectile in the Heart**.—Pezzi calls attention to a case recently reported by Ascoli in which a shrapnel ball entered the back in the iliac region and its course was traced by radioscopy along the vena cava and into the right auricle where it seems to be harmlessly sojourning The symptoms at the time of the wound and while the projectile was in the vein were quite severe, but since it entered the heart there has been no appreciable disturbance It has probably become coated with fibrin, and as it is tossed about in the blood stream pouring through the heart, it probably gets no chance to come in contact with the walls of the auricle, and the retrograde current as the valves close keeps it away from the valves likewise In ten cases on record of a projectile in the heart, an attempt was made to extract the projectile Four of the patients died, but the operation was a success in six cases But even in these favorable cases there were threatening heart and pulmonary disturbances Ascoli does not advise any operation in his case as the lungs are diseased and the general health poor The case confirms the prevailing physiologic conceptions as to the mechanism of the action of the atrioventricular valves

Journal de Médecine de Bordeaux

July, LXXXVIII No 8 pp 145 168

37 *Tardy Extraction of Projectiles in the Thorax and Pelvis Charbonnel —p 147
38 *Traumatism and Pleuropulmonary Tuberculosis Carles and Charrier —p 155
39 Technic for and Advantages of Intravenous Quinin Treatment of Malaria R Le Dentu —p 159
40 What Has Been Done for Tuberculous Soldiers E Leuret —p 161

37 **Extraction of Projectiles in the Thorax**—Charbonnel has performed 128 operations to extract projectiles after the wound had healed This includes thirty-four cases of a projectile deep in the thorax or in the region between a horizontal line passing through the fourth lumbar vertebra and a line connecting the lesser trochanters He summarizes the details of each and the lessons learned from his experience

38 **Traumatism and Tuberculosis of Pleura or Lung**—Carles and Charrier state that in 104 cases in their service of war wounds of the chest, in only one instance a pleuropulmonary tuberculous process has developed for which the traumatism seemed to be responsible The young man had been robust and exceptionally healthy, the first symptoms of tuberculosis developed about six weeks after a shell wound of the right lower chest and proved fatal in less than three months

Paris Médical

July 21 VII No 29, pp 61 76

41 *Pleuropulmonary Tuberculosis and Military Service C Laubry and L Marre —p 62
42 *The Intestinal Preoccupations of the Aged P Merklen —p 66
43 Horehound in Treatment of Bronchitis H Leclerc —p 69
44 Improved Apparatus for Continuous Extension, Especially of the Hip Joint Chabannas —p 71

July 28 No 30 pp 77 92

45 *Features of Malaria Acquired in Macedonia P Carnot —p 78
46 *Beneficent Secondary Pleurisy with Pulmonary Tuberculosis C Murard and H Marotte —p 85

41 **Pulmonary Tuberculosis and Military Service**—In concluding their study of this subject, Laubry and Marre say that in dubious cases in which the man has been given leave of absence for the usual three months, he should go to the hospital for a week for thorough examination before his case is finally passed on The greater their experience the more exceptional they find actual recuperation after a man has been sent back from the front on account of pleuropulmonary tuberculosis But many of the men recuperate enough for the auxiliary service and can prove very useful as guards for prisoners, for bridges, and other light duty

42 **The Intestinal Preoccupations of the Senile**—Merklen comments on the way in which the senile become slaves to their bowel, convinced that they are constipated and applying all kinds of measures against the dreaded constipation He warns the physician not to be misled by their statements and complaints If the physician is duped by them, they use his statements and authority to back them up in their erroneous practices, and the vicious circle becomes more and more confirmed A factor that frequently cooperates is their forgetfulness, they do not remember when they have been to stool and may honestly believe that days have elapsed since their last passage

45 **Macedonia Malaria**—Carnot says that the plasmodia found in the men returning with malaria from Macedonia are of the usual tropical and tertian types, but they seem to be peculiarly resistant to quinin Some of the men and physicians returned from Macedonia still have their attacks or series of attacks every two or four weeks, notwithstanding that they have been taking quinin regularly for more than a year, some with great system and perseverance Even by the intravenous route, the attacks are only postponed a little, not broken up completely, except the one attack in course, without warding off attacks later, sometimes very violent Arsenobenzol is equally ineffectual so far as a permanent cure is involved, but this aids in building up the general health A combination of these two drugs seems to be the best we can do at present, he says, giving them together or in turn The spontaneous acquirement of immunity seems to be the only reliable means of finally exterminating the hematozoa, and our chief aim should be to favor these biologic reactions

46 **Beneficent Secondary Pleurisy with Pulmonary Tuberculosis**—Murard and Marotte report in detail three cases all showing the arrest and tendency to sclerosis of a progressive primary tuberculous lung process after an intercurrent pleurisy with a moderate effusion, left unmolested In each the pleurisy came on with a sudden onset, the symptoms so stormy that the clinical pictures resembled those from a spontaneous pneumothorax In a fourth case the effusion was evacuated and the symptoms became at once seriously aggravated, until the effusion had collected again The secondary pleurisy in such cases is probably due to the bursting of some minute superficial tubercle opening into the pleura and pouring into it a few tubercle bacilli, only enough

to start an immunization process from the serofibrinous effusion Similar benefit has been observed from the pleurisy noticed in the course of treatment with artificial pneumothorax In both the effusion starts a kind of immunization process

Gazzetta degli Ospedali e delle Cliniche, Milan

June 14 XXXVIII No 47 pp 679-696

47 *Hemorrhagic Spirochetosis among the Troops P D Siccardi —p 681

June 17 No 48 pp 697-712

48 Bony New Growths Consecutive to Multiple and Repeated Contusions A Mori—p 697

47 Hemorrhagic Spirochetosis.—Siccardi has already reported on 700 cases of an infectious cutaneous hemorrhagic syndrome among the troops in his division One of the two types has certain features suggesting typhoid the other developed only after frostbite and resembled scurvy In this latter group he encountered a few cases which were caused by the icterohemorrhagic spirochete described by Inada and Ido and he was able to reproduce the disease in guinea pigs Even at the seventh generation it killed guinea-pigs in from three to twelve days This spirochete is eliminated mainly in the urine even after clinical recovery The large rats common in the trenches eat human excreta and they probably represent the intermediate host or at least the conveyors of the virus The epidemic appearance in certain months of the year and the complete subsidence as winter comes on suggest a possible transmission to man by insects This assumption is rendered more plausible by the fact that the intravenous is the elective route for infection

48 Bone Growths from Occupational Trauma—Mori insists that the tendons periosteum bursae and the bone itself are liable to react to multiple and repeated slight contusions with a new growth just as the soft parts react with hard edema In four cases here reported an actual bone growth developed independent of the skeletal bone below It could not be ascribed to any periostitic changes It starts with the coagulum. Metaplasia follows and as connective tissue cartilage and bone have a common embryonal origin it is easy to understand how one may become transformed into the other

Policlinico, Rome

July 22 XXII No 30 pp 925-948

49 *Rolling the Head during Sleep B Masci—p 925
50 The Enterococcus as Cause of Severe Intracranial Complications of Otitis and Mastoiditis Three Cases P Caliceti and R Vagno—p 929
51 *Emergency Treatment of Wounds of the Thorax and Lung E. Morelli—p 929
52 Suggestions for Improving the Organization of the Field Surgical Service G Bartolone—p 932

49 Rolling the Head from Side to Side During Sleep—Masci's patient is a young soldier who has been in the hospital for five months for treatment of frozen feet, complicated with a severe burn owing to loss of sensation in the feet During this entire period he has had a habit of rolling his head from side to side during slumber the head describing a complete half circle from shoulder to shoulder The rhythm is almost as regular as a pendulum's swing from seventy-five to eighty complete turns per minute. The man sleeps lightly but wakes refreshed without headache or dizziness and never cares to sleep during the day No modification was observed under tonics or sedatives until he was given 2 gm doses of chloral Under the influence of the chloral he slept quietly the head lying normally still As this was only a palliative. Masci discontinued the chloral and the rolling movements began again as before There are no cramps or contracture in any other muscles and the man seems normal otherwise. He was not aware of his trouble until he heard the doctors discussing his case. He had taken a very active part in the war at the front from the beginning The tendency to the movements probably exists during the waking hours also but the inhibition exerted unconsciously by the will prevents its manifestation. Masci remarks that treatment would be undertaken with confidence if the movements occurred awake, but "how can psychotherapy and immobilization do any good when the trouble appears only when the man is unconscious in sleep?" Probably it will spontaneously subside when the strain of trench life is over

51 Wounds of the Chest—Morelli refers to the immediate emergency measures for wounds of the thorax saying that the outcome depends on prompt clearing out of the wound and keeping up the intrathoracic pressure The danger of infection from the air of a pneumothorax is less imminent than the danger from a hemothorax His experience with hundreds of chest wounds has convinced him that a spontaneous pneumothorax is the most fortunate thing that can happen to a man wounded in the thorax In order to maintain the pneumothorax it is usually necessary to close the opening into the chest and he uses for the purpose a long soft rubber bag that can be introduced between the lips of the wound. When inflated it plugs the opening airtight The shape of the bag with its inflating tube is somewhat like the outline of a small violin He has them of different diameters to fit different sized openings and sometimes more than one has to be used when the projectile tore its way out again In one case the pressure within the thorax was 4 cm water after these bags had been introduced and it rose later spontaneously to 12 showing the hermetic closure The closure of the wound is experienced by the patient as a great relief After danger of hemorrhage has passed, the wound can be closed by surgical measures

Revista de la Asociacion Medica Argentina, Buenos Aires

June XXII No 151 pp 595-965

53 *Serums and Vaccines in Treatment of Puerperal Septicemia. J A Beruti—p 595 N P Costa—p 774
54 *Radium Treatment in Gynecology C A Castano—p 613, E A Fox—p 643 E Pouey—p 835
55 *Management of Contracted Pelvis with Infected Uterus and Living Fetus J A Gabastou.—p 666
56 Roentgen Treatment in Gynecology J Iribarne—p 689
57 *Sign of Advanced Extra-Uterine Pregnancy J C. Lascano—p 728
58 Cesarean Section in Northern Argentina J C Lascano—p 740
59 Forceps Extraction Guided with One Hand Lorente.—p 756
60 The Multiple Peritoneal Complications of Criminal Abortion M L. Perez.—p 804
61 The Pediatrist in the Maternity A. F Puyol.—p 846
62 Advantages of Surgical Measures for Puerperal Septic Uteropelvic Thrombophlebitis. A Turenne—p 853

53 Vaccine and Serum Treatment of Puerperal Septicemia—Beruti concludes from his own experience and the published data that antistreptococcus serotherapy in puerperal septicemia generally fails He declares further that the intravenous route is irrational as also large doses and attempts to use antistreptococcus serum in prophylaxis Better results have been realized with nonspecific serotherapy Normal horse serum has given excellent results in the hands of Pouey and Turenne of Montevideo among others In one case the leukocytes rose from 4 500 to 25 000 under it, and in another case peritoneal septicemia retrogressed. Beruti has had a number of notable recoveries under intravenous injection of normal horse or beef serum, the single dose not over 20 c c It is his impression that the serum is more potent therapeutically when the animal has been previously bled. The effect is much the same as with the specific serums but surpasses it. His conclusions as to specific vaccine therapy are that it has not sustained its promise Vaccines made with other bacteria have proved unexpectedly effectual in the hands of some especially in Argentina with Enriquez, Kraus Mazza and others and Werner at Vienna has reported excellent results with a colon bacillus vaccine in puerperal fever Beruti himself used an extract of colon bacilli instead of a vaccine applying it in a number of very serious cases of puerperal septicemia and with constantly unfavorable results The intense reaction that followed the intravenous injection was unmistakably deleterious In order to ascertain the physiologic bases for this heterotherapy, he experimented on dogs and rabbits What he observed convinced him that there was something more involved in these formidable medicinal reactions than the mere action of albuminoids and colloids But why they are so decidedly beneficial in some cases and so decidedly the reverse in others is still a mystery It is like shaking a clock that has stopped it may start it to going perfectly thereafter, or it may have and after the operation had been concluded the rectum was drained, large amounts of the oil mixture coming away Meshtchersky adds that notwithstanding the seriousness of this mishap, the hospital has not given up the use of this extremely convenient method of anesthetization, especially for operations on head and neck but the dose of ether has been reduced to 100 gm If more is found to be needed, it is given by inhalation Each of the five writers quotes extensively from Gwathmey A description of his technic was given in The Journal, Dec 10, 1913, p 2274

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

June 16, I No 24, pp 1923 1998

76 *Echinococcus Disease of the Brain J T Peters—p 1927
77 White Bread or Whole Grain Bread E C van Leersum and J Munk—p 1942
78 Unilateral Paresis of Certain Cranial Nerves after Traumatism H Bolten—p 1946
79 Chalk Cures Warts A B J Wong Lun Hing—p 1950
80 Beriberi and Vitamins J de Groot—p 1952
81 Medical Impressions of America C W F Winckel—p 1975 Continuation

76 **Echinococcus of the Brain**—Peters cites statistics to show that the brain is affected once to the liver's twelve times, as a rule, but in the sixty-three operative cases in the last five years in the Netherlands, there was no case of brain echinococcus disease He recently encountered a case as a necropsy surprise, and urges the application of the serum sediment test with hydatid fluid (Ghedini-Weinberg) in every case of suspected brain tumor, applying the test to the cerebrospinal fluid A history of having much to do with dogs and living in a region where echinococcus disease is known to be prevalent, may also aid in differentiation

Svenska Lakaresallskapets Handlingar, Stockholm

June 30, XLIII, No 2, pp 345 504

82 *Cancer of the Prostate B Floderus—p 345
83 *Recklinghausen Tumor of Wolffian Body (Urnjurens utbredning och aterbildning) H Forssner—p 389
84 *Fractures Below the Knee A Troell—p 439

82 **Cancer of the Prostate**—Floderus insists that cancer of the prostate should be suspected whenever an elderly man complains of disturbance in urination or pains in the lower abdomen, or sciatica, and also whenever the prostate is enlarged He is convinced that it is much more frequent than generally recognized, both cancer and adenoma may exist side by side He has encountered ten cases of this combination, at first, and possibly for years, the clinical picture may be merely that of hypertrophied prostate In one such case cystostomy was done nine months before death which occurred from pyelonephritis Necropsy disclosed cancer tissue in the prostate with metastasis in some of the pelvic glands The prostate was regularly enlarged and of an even, elastic, soft consistency, without perforation of the capsule at any point In another case the prostate trouble was of nine years' standing, four years before death its cancerous nature had been surmised from involvement of the seminal vesicles and inguinal glands

In Floderus' 800 cases of manifest neoplasm in the prostate, there were eighty malignant cases, that is, in 10 per cent The ages ranged from 50 to 85 In his cases the seminal vesicles were involved twice as often as has been reported in the older statistics, Young alone has encountered this complication in 80 per cent Floderus found cancer nodules in the bladder at five out of eleven necropsies If the ureter mouth is compressed, hydronephrosis may develop comparatively early Metastasis occurs generally by way of the blood or urine, as the prostate capsule resists so tenaciously the encroaching cancer Metastasis in bones is more common judging from his experience than in other tissues The liver, lungs and pleura are the organs most frequently affected, next in order come the peritoneum, dura mater, kidneys suprarenals and pancreas Quite exceptionally metastasis has occurred in intestines, heart, brain, spleen, thyroid, the eye or bronchial mucosa Secondary cancer in the prostate is known after cancer of the rectum, bladder and seminal vesicles Palpation of the prostate through the rectum should never be omitted when the prostate is supposed to be enlarged Before attempting any operation on a cancerous prostate, the bones should be examined with the Roentgen rays to exclude metastasis The Bottini method of galvanocauterization of the prostate has given great relief in some cases known to be absolutely inoperable Prostatectomy is most promising in the dubious, still incipient cases, but it has ensured a permanent cure in some fully manifest cases Transvesical enucleation seems the best technic in the early cases, especially when there is much enlargement of the prostate The typical perineal prostatectomy makes more demands on the patient, but it can be adapted better to the conditions encountered In the more advanced cases, Young's operation or sacral prostatectomy should be considered With inoperable cancer of the prostate a palliative perineal prostatectomy is better than transvesical but it should be supplemented by radium treatment He pleads for the more general use of radium with cancer of the prostate both after operations and in the inoperable cases The clinical course ranged from two and a half months to eleven years in his series In the eight cases in which it was over five years, the primary disturbances were evidently due to adenomatous enlargement More than with cancer in any other organ, he declares, the patient's fate depends on an early diagnosis The prostate sometimes enlarges more rapidly than with simple hypertrophy, while in some cases the prostate scarcely enlarges at all Sometimes the prostate may be the seat of simple congestion, in one such case the acute nonsuppurative prostatitis caused great increase in size, but all subsided under bed rest, laxatives, catheterization and massage of the prostate The resistance of the capsule is greater at the lower pole so that as the cancer develops it is upward, forming a rounded tumor projecting into the bladder As the posterior commissure increases in size, the median sulcus becomes partially or entirely smoothed out This is a characteristic finding when the prostate is palpated through the rectum over a metal sound in the bladder With simple hypertrophy the reverse occurs, the median sulcus is exaggerated The cancerous prostate is liable to lose its sharp outlines and blend more with the surrounding tissues, or with some part protruding, and it is liable to be fastened to the wall of the pelvis Any local tenderness in the glands in the vicinity may prove instructive He applied epicystostomy in twenty-two cases and with invariably good results, some of the patients survived for more than fourteen months It requires only a few minutes, and the incision after the introduction of the retention catheter may close up spontaneously He has had no recurrence in any of his fifty cases in which the hypertrophied prostate was enucleated through the bladder (four deaths) In his three cases of a palliative perineal prostatectomy, the pains were relieved, micturition facilitated and the patients survived for eleven, six and one month This intervention relieved the pelvic nerves from the pressure of the cancerous masses, and the benefit was marked It also avoids the depressing influence of the fistula into the bladder so that he commends it as the best palliative measure when the patient is able to stand it and severe and radiating pains demand relief Radium treatment through the incision should follow

83 **Evolution and Retrogression of the Wolffian Body**—Forssner gives three plates to show the findings in his research on embryos only 15 or 20 mm long, and also nineteen illustrations in the text tracing the development of the wolffian body in the growing fetus He compares the published data with his own findings, discussing in particular the so-called Recklinghausen tumors

84 **Fracture of the Leg**—This comprehensive study of 114 cases of fracture below the knee is accompanied by 137 excellent roentgenograms and a bibliography of 176 titles The details of each case are given at the time of treatment and from one to four years later The leg could be used in one or two months with simple fracture of the fibula alone, but four months were required for an abduction fracture and bimalleolar fracture, about six months for fracture of the shaft of the tibia, and fifteen months for fracture of the tibia condyles Good anatomic healing was realized in 98 per cent and good functional healing in 93 5 per cent A plaster cast was applied in all but about 5 per cent

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THE RELATION OF LARYNGOLOGY, RHINOLOGY AND OTOLOGY TO GENERAL MEDICINE*

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As this section is only one unit of a great national body representing every department of medicine it seems appropriate to spend a short time in reviewing our relation to general medicine.

A glance at the annual programs covering the last five years gives us some conception of the range of our specialty, as we are called on to deal directly with specific problems.

The following lists of special and general diseases, which may originate from some focus, or have their incidence in the nose or throat, bring home to us the importance of laryngology and rhinology to general medicine and the indirect problems which we must meet as consultants. In compiling these lists, I have not presumed to represent the opinion of internists, or workers in other specialties.

Each list, therefore, was submitted to an authority in his respective department and received his endorsement.

I have attempted only to arrange in some sequence what is already known, and also to emphasize the fact that we are being drawn into more intimate relations with internal medicine rather than away from it.

One cannot be a good specialist without having his outlook on general medicine broadened. His special study becomes the objective point to which he brings all correlated facts and differentiates them.

OPHTHALMOLOGY

The diseases of the eye arising from foci in the nasopharynx have been added to each year, until now the etiology of the following list is conceded. For example

Retrobulbar neuritis from infection in the ethmoids and sphenoids

Acute edema of the lids and congestion of the conjunctiva from the ethmoids

Pain and photophobia from acute congestion in the anterior ethmoid region

Iritis from a focus in the tonsils, teeth or sinuses

Blocking and infection of the tear duct from obstructions of the nasal end of the duct.

Orbital cellulitis from the ethmoids

Optic atrophy from the pressure of tumors in the ethmoid region

Ocular displacement and diplopia from pressure in the ethmoid region, and the supposed connection of phlyctenular keratitis to infected tonsils and adenoids

SKIN

We may have the following skin lesions which may be primary in the nose or throat, or arise from some focus

Impetigo from septic discharges from the nose or ear

Erysipelas from erosions, or discharge from the nose or ear

Lupus, extension from the nose

Lepra from the nose

New growths from the throat, nose or ear

Angioneurotic edema

Lymphangioma, extension from the tongue or cheeks

Syphilis may be primary in the nose, throat or ear

Tuberculosis may be primary in the nose or throat

Scrofuloderma secondary to tonsillar infection

Noma, primary in the nose

Scarlet fever, incidence in the throat

Measles, incidence in the throat

Erythema from infection of the nose or ear

Urticaria from septic discharges

Cellulitis from septic discharges from the nose or ear

Lichen planus in the throat as a neurotic manifestation

Leukoplakia, primary in the soft palate

Keratosis, primary in tonsils, pharynx and base of tongue

Pemphigus, primary in palate, pharynx, tonsils and buccal surfaces

Actinomycosis, primary in pharynx and tonsils

Glanders, secondary in the nose.

ORTHOPEDICS

In the department of orthopedics, we have the arthritides, acute, subacute and chronic, in which the nasopharynx is supposed to share the honors with the gastro-intestinal tract, as an etiologic factor. It is still an open question, however, whether the gastro-intestinal disorder may not itself be secondary to a focus in the nasopharynx.

DISEASES OF CHILDREN

Nasopharyngeal conditions in children may be manifest as

Syphilis, primary in the nose, throat or ear

Tuberculosis, primary in the nose or throat

New growths, primary in the nose, throat or ear, especially epidermoid cancer and lymphosarcoma

Measles, incidence in the throat.

Scarlet fever, incidence in the throat. (Dr. Place calls attention to the fact that in those cases in which one tonsil has been removed and the other not, on the operated side the evidence of scarlet fever is almost nil. The course of the disease seems to be milder. Dr. Place also thinks that pigeon and funnel shaped chests in children are due to nasal obstruction, and that rickets play a secondary role.)

Vincent's angina, primary in the tonsils

Streptothrix, primary in the tonsils

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*Chairman's address read before the Section on Laryngology, Otology and Rhinology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June 1917.

Rheumatism, from focus in nose, throat or teeth
Endocarditis, from focus in nose, throat or teeth
Nephritis, from focus in nose, throat or teeth
Arthritis, from focus in nose, throat or teeth
Bronchitis, secondary to adenoid or tonsil infection
Pneumonia, secondary to adenoid or tonsil infection
Abscess, retropharyngeal or peritonsillar
Mycosis, primary in tonsils and pharynx
Herpes, primary in the fauces and pharynx

DUCTLESS GLANDS

The relation of focal infections in the nasopharynx to diseases of the ductless glands remains unsolved

Beebe remarks that there is no complicating factor in goiter, which is more troublesome or more dangerous to the patient than tonsil infections to which they are subject This observation is significant, as repeated tonsillar infections at more or less regular intervals are usually exacerbations of a chronic focus and not fresh infections

That thyroid conditions are made worse by toxemia originating in the nose or throat is conceded What rôle such infections play in the etiology of goitrous conditions is a problem particularly for those of our fellows living where ductless gland disease is endemic

GENERAL MEDICINE

Infection as a cause of general diseases is as old as the history of medicine That such infection has its origin at the beginning of the respiratory tract as a chronic focus with acute exacerbations is recognized by clinicians in an increasingly large number of general diseases

In 1894 many writers, including Pasteur, Frankel, Martin, Selmi and Bouchard, pointed out the danger to individuals from autointoxication caused by ptomains, which were formed by the action of bacteria on organic matter and distinguished between the toxic and the nontoxic The one invariable circumstance, however, surrounding the development of ptomains was the part played by bacteria

It is common knowledge that under normal conditions streptococci, staphylococci, *Micrococcus catarrhalis*, pneumococci, diphtheria, and pseudodiphtheria bacilli, meningococci, tubercle bacilli and many other pathogenic bacteria are to be found in the nasopharynx Many of these we associate with the most dangerous clinical symptoms But it is also known that the same organisms may be nonpathogenic until conditions arise that increase their virulence No one believes that such organisms are swallowed, or enter the lymph or blood currents nonvirulent, pass Nature's protective secretions and then from the lowered resistance of the host, or any other cause, become manifest as an active arthritis, endocarditis, nephritis, or other pathologic condition

On the other hand, we know that in the nasopharynx and teeth we may have all the conditions present to cause a toxemia, septicemia or pyemia with acute, subacute or chronic manifestations in distant organs, that is, specific organisms in patients at an age when the resistance is often lowered, organs undergoing involution, disintegrating organic matter, temperature, moisture, etc, which means that we may have virulent chronic foci, as well as acute local infections

These facts were called to the attention of the medical profession by Arkovy of Budapest during the period from 1878 to 1898, and were substantiated by the painstaking microscopic findings of Miller of Berlin from 1884 to 1894, and by the clinical experience of William Hunter of London, who published his results in the *Practitioner* in 1900 Recently these findings have been emphasized by Billings, Rosenow, Davis, Mayo and others

Miller of Berlin, who was educated as a physician and also as a dentist, showed bacteriologically that focal processes in the teeth, tonsils or sinuses kept up a low grade infection of the adjacent tissues, and during exacerbations this might extend by continuity, or directly by way of the lymphatics or blood stream to neighboring or remote organs Haskins since 1894 has repeatedly called attention to toxemia and septic conditions starting in the alveolar process

It is known to laryngologists that a large number of people carry for years a constant streptococcus focus in one or all of these localities, and that so-called repeated infections are only exacerbations of a chronic process, as evidenced by the fact that so-called colds start in the following way

For years, a patient will be subject to sore throat, and then the infection goes up or down, or as a cold in the head, which then goes down, but the clinical symptoms seldom alternate, showing that the focal processes have a period of quiescence and are then subject to acute exacerbations

Certain clinical manifestations of a general character are recognized, as resulting from such foci, arthritis, myositis, endocarditis and nephritis being the more common, with acute or chronic symptoms In addition, many clinicians include pneumonia, bronchitis, secondary anemias, duodenal and gastric ulcers, cholecystitis, appendicitis and chorea The clinical manifestations are often worse coincidently with an exacerbation of the focal process

The relation between this focal process and the syndrome is often overlooked because of the stormy character of the exacerbations It is not safe to trust to the history of the patient Many patients have only a slight pharyngeal irritation, particularly in the morning, which they ascribe to smoking, indigestion, etc The onset of the exacerbation to them is a fresh attack of their malady More than this, if there is an enclosed abscess in connection with the teeth or tonsils, it may discharge directly into the lymphatics It is necessary, then, for the clinician on recognizing symptoms of toxemia to remember that there may not be much local evidence to confirm his diagnosis

The number of diseases whose etiology may depend on some focus in the nasopharynx is sufficiently formidable to show (1), the service which our specialty can render the internist, (2), our relation to other specialties, and (3) that foci in the nasopharynx and teeth may be manifest only by remote general symptoms, but when such symptoms indicate toxemia, such foci should be suspected

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Rarity of Eclampsia in Germany at Present—The *Nederlandsch Tijdschrift*, quoting the *Deutsche medizinische Wochenschrift* of recent date, states that since the war began the number of cases of eclampsia in connection with pregnancy has dropped very low The hospitals call attention to this in their reports Warnekros accepts it as the result of the lesser consumption of fat and albumin, imposed by war conditions, and urges that all pregnant women from the sixth month onward should be restricted to a vegetarian diet Grumme protests against this, saying that as only one woman in five hundred, at the utmost, presents eclampsia, it would be like trying to drive out the devil with Beelzebub

PROGRESS IN TEACHING PSYCHIATRY*

ADOLF MEYER, M.D.
BALTIMORE

The request of our secretary for a contribution to this meeting suggested to me an extension of my discussion[1] on the psychobiologic level of medical facts (presented two years ago in San Francisco and published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1915), a consideration of my present plan of teaching psychopathology and psychiatry and of some principles characteristic of the plan. No real physician is altogether specialist and no real specialist fails to define his share as part of the great problem of helping the sick and troubled patient. The psychiatrist may at last say that he has found himself. Instead of being singled out from the rest of physicians as what used to be called an asylum man, pure and simple, he has found his sphere in the special study of the *patient as a person,* the special study of the total activities and total behavior, the kind of thing which cannot be singled out as merely the function of any one detachable organ, not even of the brain by itself.

In the medical curriculum the student is led to take man apart and to study the structure and function of these parts; it then falls to the brain physiologist, and ultimately to the psychologist and psychiatrist, to show the student how these parts and functions are integrated into that whole which we know as the personality of the patient, the subject of the life history, the entity to which we as physicians appeal when we give advice and map out a routine of helpful behavior and adjustment; that entity which we try to bring into health- and success-bringing relations with ourselves, the environment, and personal life problems. We deal not only with organs but also with the integrated and integrating personality and its functions. The psychiatrist thus deals with a wide range of facts usually left to untrained common sense, but now available as a more and more organized body of facts, methods of study and methods of therapeutic procedure.

An important advance in teaching comes from this gain in a more natural *definition* of the field. As I outlined two years ago in my contribution to the San Francisco meeting, the second year student gets an introduction into the methods of the taking of a life-history, a study of the assets and determining factors, a general discussion of the intelligence tests, the usual mental status, the method needed in examining a case of aphasia and the principles of getting at the dynamic determining factors of the patient's life, with a study of the orientative activity, the associative processes and resources, the affective assets, and habit-formation.

With this preparation, the student begins his third year with a study of the principal reaction-types which he has to learn to understand and distinguish from one another. We may begin with the organic reaction-types with their memory and judgment defects (very specifically brought out in the parenchymatous brain syphilis or paresis, in senile dementia and in the Korsakoff reaction) and the epileptic and epileptoid reactions. The epileptic and the Korsakoff reactions lead over to the delirious-hallucinatory reactions, which are either mainly toxic as in the drug and alcoholic deliria, or lead over to reactions with a more constitutional ground work, as in the acute and chronic hallucinoses.

The next reaction-type discussed is the affective one, either tending to appear in attacks constituting the manic-depressive and cyclothymic disorders, or leading over to the substitutive less diffusely affective disorders of hysteria and psychasthenia, and the deeper substitutive disorders of the schizophrenic type with its more benign and its graver forms. Next we find the paranoic disorders, and the constitutional disorders of balance or perversion, and the developmental *defects* such as idiocy, imbecility, etc.

SUGGESTIONS AS TO METHODS OF STUDY

The student is told from the outset that while each reaction-complex tends to have its own structural etiologic and prognostic implications and meanings, the various types are not necessarily exclusive of each other in one and the same patient and that we must learn to recognize combinations.

Each patient is studied specifically for the etiologic factors (exogenic, somatogenic, neurogenic, psychogenic and constitutional), and for therapeutically responsive features, so that ultimately the patient stands before us as an experiment of nature, sometimes simple, sometimes complex, not an entity deriving light or meaning from the pigeon-hole of some classification, but an orderly *set of facts* inviting the physician to recognize more or less clean-cut problems of adjustment: the somatic therapy, the rest-treatment and graded reeducation, and the study and readaptation of psychogenic and constitutional problems. The third year course thus familiarizes the student with the essential *types* and *problems,* so that in the fourth year the student is prepared to meet the rank and file of the outpatient and house cases and is able to follow the more detailed discussions of the psychopathologic, cerebral, general somatic and endocrine components of the cases as they are met, and also the problems of management, of commitment, etc. No student is admitted to the final examination without having personally examined and reported in writing a minimum of six cases.

The most fundamental departure from current tradition is the emphasis not on the question whether the patient presents one or the other of a set of diseases, but rather on the question how many facts and conditions enter into the state of the patient, what reaction-complexes are recognizable as relative entities and what psychopathologic, cerebral, general somatic, endocrine, toxic and infectious components; in other words, we take the same attitude which modern pathology has assumed in general medicine. We get away from the dominant notion of classification of each patient as having just one exclusive disease, and that usually a rather artificial traditional entity but rarely realized completely in any one case; we prefer to urge the student to consider whatever group of facts and factors he actually finds in the patient before him. We certainly would not classify our necropsy cases according to one single cause of death, and neglect to do justice to the other facts and factors present; and why should we not train the student of psychiatry to learn to appreciate and trust the facts and factors by themselves and in combination as actually found? It is absolutely essential that he learn to use all the means of general medicine at his disposal and also to work safely with the psychobiologically integrated part-phenomena and functions, as well as with the frequently more or less artificial units of nosologic disease entities

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Meyer, Adolf: Objective Psychology or Psychobiology with Subordination of the Medically Useless Contrast of Mental and Physical, THE JOURNAL A. M. A., Sept. 4, 1915, p. 860.

Our general medical, clinical and necropsy diagnoses no longer fail to specify the combination of facts to be dealt with, and psychopathologic and psychiatric diagnoses are at last reaching the same principle We may have a right to speak of manic-depressive psychoses, and of dementia praecox types of mental disease in order to designate certain broad categories similar to the terms used when we speak of Bright's disease, or of valvular disease, but such terms would hardly be regarded in modern medicine an adequate and sufficient "diagnosis" For the practical purposes of today, articular rheumatism is no longer a complete diagnosis, but a suggestion in the direction of a proper search for infectious sources and their working Similarly we have to train the student of psychiatry and psychopathology to heed the structural facts, the toxic and endocrine and serologic facts, and the constitutional and psychogenic facts, and to learn to work with them, individually and in combination Even the simplest general diseases, the acute infections, are no longer viewed as an issue of the mere presence of a microbe, they present an infection plus a problem of constitution, or of more or less immunity, and similarly the disorders of the psychobiologic adaptive processes must be viewed as the resultants of a group of facts and factors, and by accepting this view, we get on a natural working basis

SUMMARY

To sum up the present trend of teaching psychiatry

1 Psychiatry cannot limit itself to the traditional asylum-diseases It has become the medical study of all types and forms of disorders or involvements of the total behavior and mentation, from the simplest, we might say normal, defects and difficulties of adaptation to the more sweeping affections, some of which *may* disqualify the patient for being his or her own safest guide and adviser and then may enter the category or temporary phase of committable disorders

2 The second year course of the medical student includes the methods of recording a medically useful biography, of using the standard tests of intelligence and motor performance, of making out the principal facts and determining factors of a normal individual's make-up and reactive tendencies

3 The third year course deals with the standard reaction-types or reaction-complexes of psychopathology and the factors entering into them

4 The fourth year course takes up the general routine of cases, and the study of special problems and an individual study of at least six cases by each student

5 The principal departure from tradition is the inclusion of normal psychobiologic adaptive problems, and the getting away from the dogmatic notion of "one person one disease" dictated by a classification-ridden tradition, and from a nosology which neglects too many points important for the understanding and treatment of the actual patient

6 Hence, we should say that the student is led to recognize the facts and factors entering into the simple entities and combining in the more complex disorders, so that he may get a dynamic as well as a structural conception of the patients whom he is called on to treat

One of the principal consequences of this mode of instruction is that the students frequently find patients in other divisions of the hospital who, according to their impressions, should be referred to the psychopathologic or psychiatric department, especially many of those patients who, according to the internist or surgeon "have nothing the matter with them," but who should not be sent away without a study of their psychobiologic adaptation It is probably not practicable to transfer all these patients, hence, why not get accustomed to *use* the psychologic training wherever it is needed? We have to realize that in all branches of medicine, physicians are expected to apply psychopathologic methods, just as modern psychiatrists make use of all the methods and experience presented by the other departments of medicine, even if the patients have mainly psychopathologic problems

Another consequence is that quite a few students begin to see, in conditions which are looked on as normal or as merely nervous, possibilities of readjustment which may become of inestimable value to the patient and in the interest of preventive medicine and hygiene because the worker is put into the position which enables him to deal with the component factors before the full-fledged traditional pictures have established themselves, and have begun to overawe both patient and physician

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ABSTRACT OF DISCUSSION

Dr E. Zueblin, Cincinnati From the standpoint of general medicine we feel the necessity of a closer study of conditions classified under the category of neurasthenia In using this term we frequently underrate the influence of the mind on functional disorders, and often, on account of an erroneous interpretation of symptoms, we fail in our treatment The student as well as the medical practitioner must be instructed by close observation of many nervous and psychiatric patients how to differentiate psychogenic symptoms from those arising from organic lesions Dr Meyer's plan of instruction means a decided step in advance as a help to understand and analyze the patient's attitude, as a better way of interpretation and treatment of the morbid manifestations The student having an opportunity for psychiatric training according to Dr Meyer's plan can be congratulated

Dr. Tom A Williams, Washington, D C The objection might be raised by some of the members that Dr Meyer's suggestions are a "counsel of perfection," and only possible when three years can be given to specially well prepared men to profit by such a course This feeling must be in the minds of many, so I would explain that it is not necessary to give a course of three years in order to impart knowledge of practical utility, nor is it necessary to have highly gifted students At Harvard University there is only a one-year course of two sessions a week By means of the principle set forth at the conference on medical education at the Atlanta session of the Southern Medical Association, the results are astonishing as regards the insight of the students, in spite of the fact that they are not men of extraordinary capacity and that they have comparatively little preliminary and medical training The clinical material, too, is often scanty and poor In spite of all these drawbacks, there is a most satisfactory gain in pragmatic clinical power through the acquisition of the psychiatric attitude toward the patients Therefore, we need not think that we teachers are not able to do more with the conditions that pertain greatly to improve the training in psychiatry and neurology in the average medical school

Dr Adolf Meyer, Baltimore At Johns Hopkins Medical School we have in the third trimester in the second year two hours a week, and the same in the first trimester of the third year In the fourth year we have three hours a week during one trimester We do not feel that we are reaching perfection but simply using our opportunities so as to give the student a better chance for digestion by spreading the obligatory work over the three years, in addition to this, we provide elective work for those who have more time and special inclination

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THE TECHNIC AND AFTER-TREATMENT OF HEMILARYNGECTOMY AND TOTAL LARYNGECTOMY*

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NEW YORK

Laryngectomy is a time-consuming operation even in the most expert hands, making the question of anesthesia of major importance Some operators are so fearful of the lethal effect of general anesthesia that they have gone to the extreme of doing the entire operation, including the block removal of the neck tissues, under local anesthesia From my observations, the brutality of such a procedure is unjustifiable I believe that the combination of both kinds of anesthesia gives us the only present solution of the problem From the standpoint of anesthesia, the operation may be divided into three stages (1) the skeletonization of the larynx and trachea (2) the removal of the larynx, and (3) the closure of the wound

The first and last of these stages may be done under novocain and the second under general anesthesia Thus the period of sleep should not continue longer than twenty or thirty minutes I have employed this method in my later cases with very satisfactory results The superficial cervical plexus is blocked on both sides, the skin is infiltrated along the line of incision, and a few deep injections are made laterally on both sides of the larynx, trachea and thyrohyoid membrane A 2 per cent novocain-suprarenin solution is used and from five to ten minutes allowed for its full effect Morphin alone is employed as a sporific one hour prior to the beginning of the operation

The operation here detailed for hemilaryngectomy is my own Its radical departure from the accepted method of Gluck makes me put it forward with some hesitation It has been done in six cases with six surgical recoveries The operation for total laryngectomy is essentially the accepted method of the one-stage operation with some modifications in technic and in the after-treatment In total laryngectomy I prefer the one-stage operation for various reasons When a preliminary tracheotomy is done and the trachea surrounded with gauze to establish peritracheal adhesions, the object aimed at is the prevention of extension of infection to the mediastinum This possible good, in my opinion, is outbalanced by the fact that at the second stage we are forced to operate in a well established septic field Another objection is that a primary union between the skin and tracheal mucous membrane is seldom possible when the trachea has been mutilated and the surrounding tissues infected A clean union here means that the patient may eventually dispense with the tracheal cannula To wall off the trachea at the first stage and to leave it closed would be a more logical procedure in the two-stage operation

When the arytenoid on one side is involved, a total extirpation of the larynx is the safer procedure Indeed, the removal of the neck tissues on the involved side should be seriously considered if the disease extends to the posterior part of the arytenoid, since then it is quite possible that the lymphatics have carried the cancer cells beyond the larynx In several cases, I have removed the anterior portion of the esophagus where it lies in juxtaposition to the larynx, and for one third of its caliber, without impairment of its function

Primary union is the exception in total laryngectomy The wound infection in all my cases began above at the pharyngeal closure, manifesting itself between the second or fourth days Liberal opening with drainage prevents or retards its spreading downward to the danger zone behind the tracheal stump This retardation is an important factor in the prevention of mediastinal infection, giving the retrotracheal region time to become walled off Wound infection with sloughing may not, after all, be an unmitigated evil, since it may, by the eradication of disseminated cancer cells tend to retard or prevent recurrence I believe it has done so in two of my cases

Prior to the operation every endeavor should be made to put the mouth into as clean a condition as possible by the extraction and treatment of diseased teeth

I would lay stress on the following points in the management of the operation and of the after-treatment

1 The technic should be so planned as to prevent the entrance of blood into the trachea The hemostasis employed in other surgical work is not sufficient in this operation *Before the trachea is opened, an absolutely dry wound is imperative* When the trachea is cut across, all small bleeding points must be secured at once, and a snug fitting tracheal tube must be at hand for immediate insertion If blood escapes into the trachea it should be sucked out by negative pressure before it has time to pass the bifurcation

2 Wound contamination from the open trachea and pharynx should be minimized by quickly closing the former with the breathing tube and by plugging the latter with a piece of gauze large enough to fill the pharynx and mouth

3 Drainage wicks should be placed in two danger zones, namely, under the pharyngeal closure and behind the tracheal stump The latter drain lies across the direct pathway of mediastinal infection

4 A properly balanced diet is given from the start. This is accomplished by the use of a feeding tube introduced through the nose into the esophagus during the operation and left in place as long as required

5 Strict attention must be given to drainage when infection occurs Suction does much here to cleanse the wound of pus and tenacious mouth secretions

6 The absence of lung complications in my cases was partly due, in my opinion, to the use of intertracheal suction, applied through a catheter introduced as far down as the bifurcation and, at times below This catheter is used, as indicated by the amount of tracheal secretion, at least from two to four hours for a few days following the operation Two physiologic principles underlie the expulsion of secretions from the trachea, namely, normal ciliary action and normal cough By normal cough I mean the compression of air behind the closed glottis and its expulsion by a sudden release of this closure In the open trachea normal cough is impossible, and, following operative traumatism the ciliary action of the tracheal mucous membrane is at least temporarily, in abeyance. Hence there is a tendency for tracheal secretions, much increased after laryngectomy, to enter the lungs, producing well known consequences

7 If it cannot be decided whether a hemilaryngectomy or a total laryngectomy is indicated, the larynx should be split and

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its interior carefully inspected If still in doubt, I would strongly advocate the more radical procedure

It may be stated as an axiom that the surgeon is given but one opportunity to eradicate cancer wherever found

When, owing to the extent of the disease, a block dissection of the neck is indicated, the procedure is as follows An incision from the chin to the sternal notch is made, including all the tissues down to the deep fascia From the upper end, extending laterally on one or both sides, a second incision is carried outward across the sternomastoid muscle just under the mastoid process The third incision begins at the lower end of the first one and is carried outward and downward, crossing the clavicle near its outer third The object of this technic is to make the flap as wide at its base and as thick as possible My experience with the rectangular flap generally used has been that the inner edge is prone to slough from lack of nutrition Much time is often wasted in trying to save the sternomastoid muscle It is my custom to remove it entirely, thus gaining an immediate and good exposure of the deep structures of the neck It may be detached below and with it all the underlying gland and lymphatic bearing tissues removed *en masse*

OPERATION FOR HEMILARYNGECTOMY

Through a short incision a very low tracheotomy is done To insure against asphyxia from cannula displacement, the edges of the opening into the trachea are transfixed by two traction sutures These are laid one on each side of the neck Traction on them opens the slit in the trachea In low tracheotomy, cannula displacement may be troublesome if not dangerous, as the depth of the wound and the postoperative edema may make it almost impossible to find the opening in the trachea The anesthetic is given through a tube inserted through the tracheal cannula

A second incision, beginning under the chin, in the median line, and extending down to just below the cricoid cartilage, exposes the thyroid and cricoid cartilages and the thyrohyoid membrane A bridge of tissue about 1 inch wide is left between this and the tracheotomy incision All of the tissues attached to the diseased side of the larynx are dissected away in one flap, care being taken not to injure the under surface lying in juxtaposition to the thyroid cartilage When turned out, this flap should have a smooth fascial lining which later is to form the lateral wall of the new larynx The cricoid and thyroid cartilages are cut through longitudinally in the center line, the thyrohyoid membrane and trachea are slit anteroposteriorly on the diseased side The loosened half of the larynx is retracted well away from the healthy side, exposing the interior of the larynx Cocain and epinephrin are applied to the larynx and trachea as far down as the cannula The trachea is packed with gauze, and, through the now open hypopharynx, a large piece of gauze is forced into the pharynx and mouth, thus walling off the operative field at both ends If the mucous membrane covering the posterior commissure and arytenoid is healthy, it is saved and carefully dissected away from the cartilage This dissection is carried backward over the posterior surface of the arytenoid and downward to the point at which it becomes continuous with the anterior aspect of the mouth of the esophagus The diseased half of the larynx is removed, being careful to preserve the flap outlined in the foregoing which remains attached to the anterior edge of the esophageal mouth All bleeding points are controlled by catching only the vessels and by tying with iodized catgut Stress should be laid on careful and nontraumatic hemostasis I will digress at this point to state that rough handling of tissues, so frequently seen in general surgery, is out of place in this operation In the ultimate result, much depends on gentleness

The next step in the operation is to endeavor to cover with mucous membrane as much as possible of the raw surface left by the hemilaryngectomy For this purpose the flap mentioned previously is brought downward and forward It may sometimes be further enlarged by splitting the mouth of the esophagus A considerable part of the raw surface left by the removal of half of the larynx may thus be covered Stitches of fine iodized gut are placed so as to hold the flap in its new position, care being taken that tension is avoided The tracheal packing is now removed and the trachea cleared of blood clot down to the cannula A long ¾ inch, folded, strip of petrolatumed gauze, thoroughly impregnated with bismuth, is packed into the trachea, filling it from the cannula to its open end This strip should be folded back and forth in the trachea, so that its removal may be more easily accomplished, and it should be packed in tight and even To prevent the lower end of the gauze from falling into the trachea and to facilitate tight packing, a drawing string is run through the gauze and attached to its lower end When the packing is in place, this string is drawn up, thus approximating the two ends of the gauze The trachea is thus corked from the secretions and drainage from above The end of the strip is brought out at the lower end of the laryngeal incision The larynx is packed loosely with a strip of iodoform gauze, the end of which is brought out at the same point as the tracheal packing The gauze in the pharynx is removed from the mouth, and the feeding tube is inserted through the nose and directed into the esophagus

CLOSURE

The mesial edge of the pretracheal muscles (the undersurface of the lateral flap) is now united to the mucous membrane of the healthy side of the larynx, along its anterior median aspect, fine iodized gut being used The skin edges are united with silkworm gut The wound is left open at its lower angle, wide enough to give drainage room for the gauze end Two provisional stitches are placed here to be tied after these strips are removed, thus entirely closing the larynx A sheet of rubber tissue, covered on both sides with gauze, is glued with collodion by its lower edge to the neck, across the bridge of skin separating the two wounds This attachment should extend laterally half way around the neck Its object is to act as a barrier between the laryngeal wound and the tracheal cannula, keeping the drainage of the one away from the other The quantity of drainage coming from the laryngeal wound saturates several pads of gauze a day and makes one feel that, if only a fraction of this fluid should find its way into the lung through an open trachea, pneumonia might well be the result The bismuth in the tracheal plug keeps it clean and odorless for days, and with the petrolatum effectually turns the drainage out toward the surface

When the laryngeal drain should be removed depends on the amount of drainage It should be kept in place as long as the serous flow continues In my limited observation, this flow lasts from two to four days I remove the tracheal plug later for the reason that the blood and serum which flow into the larynx when disturbed by the drainage removal is thus prevented from entering the trachea The tracheal plug may remain from three to five days The tracheal cannula should be removed just as soon as the new larynx is open for comfortable breathing If there is much tracheal secretion, tracheal drainage is best served by keeping the cannula in position and using suction

OPERATION FOR TOTAL LARYNGECTOMY

At the cancer age, clean mouths are the exception Carious teeth and pyorrhea alveolaris make this cavity a veritable cesspool into which our operative field must extend, and out of which must come almost unavoidable infection Before operation, this condition should be remedied as far as time will allow Chronic sinusitis must be endured since it would be quite impossible to correct it in the time given Any effort in this direction would but change a chronic into an acute process with added risk of wound contamination

If the patient will consent, the preliminary part of the operation may be done under local anesthesia, carried as far as the tolerance of the patient and the skill of the operator permit When the larynx is filled with carcinoma and the breathing is obstructed local anesthesia obviates the danger of suffocation and of an emergency tracheotomy during the early stage of the operation Such a tracheotomy would mutilate the tracheal stump, making the subsequent skin and tracheal union defective It is quite possible to skeletonize the larynx and upper portion of the trachea without pain At this point it is better to begin the general anesthesia rather than attempt the removal of the larynx by the local method, since gagging, vomiting and coughing hinder the surgical procedure and add another infective factor

If morphin has been given, great care in the administration of the general anesthetic must be taken to guard against respiratory failure I am inclined to use as little as possible such noisy adjuncts as the insufflation anesthesia apparatus, which interfere with the close observation of the patient's respiration The removal of the larynx and closing of the pharynx is done under light ether anesthesia The remaining steps of the operation are better done under local anesthesia, with an occasional whiff of ether if needed

The incision extends from the chin to the sternal notch in the median line of the neck From its upper end two incisions are carried laterally for about 1 inch This wide opening on top gives better access in the work of closing the hypopharynx In patients with long thin necks the operator may dispense with the lateral incisions The thyroid bridge is tied and cut In three cases I have been obliged to remove a portion of the thyroid gland overlying the trachea The larynx and trachea are skeletonized and the thyroid membrane exposed The greater wings of the thyroid cartilage are cut and left in position All vessels are tied and the wound made perfectly dry The trachea is cut across just below the cricoid cartilage, care being taken to secure all bleeding points so that no blood enters the trachea A rubber tube 10 inches long and large enough to fit tightly is inserted into the trachea Through this tube the anesthesia is continued The cleavage plane between the larynx and esophagus is now found and the larynx separated upward as far as is compatible with the extent of the growth If the cancer extends backward into the esophageal mouth, that portion of the latter lying in juxtaposition to the larynx must be removed The larynx is now allowed to drop back into position and the thyrohyoid membrane is cut across, opening the hypopharynx—a large piece of gauze, either of iodoform or wrung out of a 1 per cent neutral solution of chlorinated soda, is crowded into the pharynx, filling it and the mouth The larynx is removed, either taking or leaving the epiglottis The hypopharynx is closed with two lines of fine chromic gut sutures Before the first line is entirely closed the gauze is removed from the mouth and a feeding tube of suitable sized rubber is passed through the nose and guided into the esophagus to a depth of 5 or 6 inches I have seen persistent vomiting caused by inserting the tube too far Two lines of drainage are indicated—one just below the hypopharyngeal closure and the other behind the tracheal stump The drains may be inserted through stab wounds in the flaps If a gland dissection has been done, a third drain is placed in the lower, outer angle of the wound The wound is then closed in layers with No 2, iodized gut, or it may be closed *en masse* with silver wires piercing the tissues deeply and clamped with large shot

The tracheal stump is pulled forward and two or three retention sutures of silkworm gut or silver wire are passed around the third or fourth ring with a sharply curved stout needle The ends of these sutures are plunged through the tissues and brought out about 1 inch from the central incision on either side and below the trachea They are tied around pieces of gauze, sufficient tension being exerted to hold the stump forward A cuff of mucous membrane is made at the tracheal end by removing the cartilage of the first ring The subcutaneous fat is removed from the skin in the immediate vicinity of the stump, to facilitate bringing the skin and mucous membrane together Union is made with horse hair on the front and sides of the stump, and with silkworm gut behind Tension due to a sagging trachea must be avoided in joining the skin and mucous membrane A large cannula wound with iodoform gauze and smeared with petrolatum is inserted into the trachea, fitting its caliber snugly An 8 inch square of rubber dam perforated in the centers is snapped over the exposed end of the inner tube of the cannula Behind this apron the wound is dressed in the usual way The cannula inserted as above described effectively corks the trachea, preventing secretions from being coughed up over the tracheal skin union The rubber apron catches the tracheal secretions and serves as a barrier between the end of the cannula and the wound in the neck

AFTER-TREATMENT

Of paramount importance in these cases is a liberal and supporting diet Without the use of the esophageal tube it is impossible to give enough food to support those patients through the important days of convalescence The diet I prescribe is oatmeal thoroughly cooked and strained, mixed with milk To this may be added lactose and raw eggs, and occasionally melted butter Six ounces of this thick mixture are forced through the tube with a piston syringe every four to six hours, followed by 4 ounces of water Fruit and vegetable juices are later added The esophageal tube may be retained for weeks without injury, providing it is washed out after each feeding as previously mentioned. Rectal feeding, in my opinion, should not be relied on. It is merely an effective way of pretending to do something.

In some cases, tracheal and bronchial secretions are much increased. In one patient, a diabetic, crusts and plugs of inspissated mucous formed in the trachea and primary bronchi and had to be removed with bronchoscope and forceps twice a day to obviate suffocation. A negative pressure pump is used to unload the trachea as often as indicated. Strong suction may do much injury to the mucous membrane, and should be avoided.

As wound infection is the rule in total laryngectomy, its proper surgical management is, perhaps, the most difficult and most important part of our task. Infection begins, as a rule, at the hypopharyngeal closure. To delay too long in opening the upper part of the wound is a fatal error, since the virulence here encountered is high and spreads rapidly. After the wound is opened, the packing should be changed every two to four hours and the field cleared of secretions by suction. The continuous or intermittent use of hypertonic salt solution or neutral solution of chlorinated soda (0.5 per cent.) does much to promote exosmosis and thin the discharges. If the infection extends to the tracheal region, constant attention on the part of the surgeon and nurses is required to prevent the inhalation of pus and septic extension along the trachea to the mediastinum. All burrowing pockets are carefully followed, frequently packed and cleansed by suction. At no other point in the body is uncontrolled infection more serious than in the neck.

Such success as has been attained in my work has been, I believe, due to the time and pains taken in the after-treatment, to the use of little general anesthesia, and to a constant effort toward the elimination of *traumatism from the operative technic.*

REPORT OF CASES

Case 1.—M. W., woman, aged 56, in whom a cancer completely filled the larynx, was operated on (tracheotomy) two months prior to entering the hospital. There was a severe cough and the operation—total laryngectomy with resection of the glands on both sides of the neck—was done, December 1914, for the purpose of relieving her suffering without any hope of cure. The anterior wall of the esophagus was removed with larynx. There was an infection in the wound above the tracheal union with the skin. Primary union of trachea and skin occurred and the wound closed by plastic operation eight weeks after operation. Eighteen months later there was no recurrence, the patient could whisper distinctly and her weight had increased 40 pounds. No tracheal tube was needed. Twenty-two months later there was a recurrence of the disease, causing the death of the patient, June, 1917.

Case 2.—W. O. L., man, aged 52, farmer, had a cancer which involved the right cord to the arytenoid cartilage and, crossing the anterior commissure, extended over the anterior third of the left cord. In July, 1915, total laryngectomy was performed with resection of the gland-bearing tissue on both sides. Patient had cardiovascular disease with blood pressure of 210. Extensive suppuration in the wound followed but the tracheal union with the skin held and ten weeks later a plastic operation was done with good result. There has been no recurrence, no tracheal cannula worn, patient can whisper fairly distinctly and can be understood by members of the family.

Case 3.—C. B., a woman, aged 52, was operated on—total laryngectomy—in January, 1916, for cancer involving one cord, but with free arytenoid. The gland-bearing tissue was not resected. The patient left the hospital in six weeks with closed wound and one month later returned with a fistula on which a plastic operation was done with good result. Patient made no effort to speak and she died in July, 1916, of nephritis.

Case 4.—O. E., a man, aged 46, is a mechanic, physically large and powerful and in splendid general health. The larynx was so filled with cancer that tracheotomy was done to prevent asphyxia. The cancer had extended to the neck on the right side. Total laryngectomy and block dissection of the neck on both sides was performed, October, 1915, and 1 inch on the anterior wall of the esophagus was removed with the larynx. Infection and extensive suppuration occurred in the wound. The trachea and skin held, but six weeks after the operation the pharynx was wide open, the esophageal mouth was just above the tracheal opening and food was given through the open esophagus in the neck. Two weeks later a plastic operation was done and after ten days the patient was taking solid food by mouth. Present condition: The patient has gained 20 pounds in weight, has had no recurrence, and is working as an automobile mechanic, wearing the tube only while at work. He has a remarkable whisper which any one can understand at short range, and there has been no recurrence to date, June 17, 1917.

Case 5.—D. S., man, aged 64, merchant, had a cancer which involved the right cord and extended well over the arytenoid to the esophageal mouth and was rapidly growing. An operation was performed, June, 1912—total laryngectomy with gland-bearing tissue. One gland was found enlarged and malignant, but good recovery ensued and the wound closed in five weeks. There was a recurrence in the neck, September, 1912, and the patient died in January, 1913.

Case 6.—J. B., man, aged 49, plumber, who was addicted to alcoholic excesses, had a cancer of the left cord, arytenoid and anterior end of the right cord. After three weeks' treatment and abstention from alcohol, an operation was performed, October, 1912. A total laryngectomy was done, but the glands were not resected because of the weakened condition of the patient. Primary union took place and the patient returned to work in six weeks. He did not report for observation, but I learned by letter that he relapsed into his old alcoholic habits and died eight months later from cancer of the neck.

Case 7.—T. V., man, aged 56, mechanic, had a cancer of the larynx involving the anterior half of the larynx on both sides. Total laryngectomy was done, January, 1914, but gland-bearing tissues were not resected. Good recovery followed with spontaneous closure of the wound after considerable suppuration. One year later the cancer reappeared in the old scar and operation was advised, but the patient disappeared. I learned through a friend that he died six months later of cancer of the neck.

Case 8.—S. M., man, aged 49, clerk, was a syphilitic and had hoarseness for one year which was probably specific in nature. When first examined a chronic laryngitis was present with a well circumscribed cauliflower mass forward of the right posterior commissure and a piece removed and examined microscopically proved the growth to be malignant. September, 1914, total laryngectomy was performed, but the gland-bearing tissue was not removed. Eight months later the glands in the right side of the neck became enlarged. A block dissection was done and the glands proved to be nonmalignant. At present there is advanced cardiovascular disease with myocardial degeneration, but no recurrence of the cancer in the neck or throat and the patient does not find it necessary to wear the tube. This patient will probably die before the time limit for nonrecurrence is reached. In June, 1917, the patient was still living, his general physical condition was the same and no recurrence of the growth had appeared.

Case 9.—P. R., was operated on, July, 1916, and the larynx and esophagus removed just above the level of sternum for cancer which involved both. Recovery occurred after considerable sloughing and with the help of a plastic operation two and a half months later. The patient's condition improved, there was a gain in weight with entire disappearance of the pain in neck and temporal regions of head (cancer of esophagus frequently produces pain in the temporal and mastoid regions). Patient was under observation until April, 1917, and no recurrence had taken place up to that time. Since then

I have learned that the patient died, but could not ascertain the cause of death This patient was too far advanced to hope for no recurrence

Case 10—J B, man, aged 46, clerk, had a cancer of the right cord involving the arytenoid A total laryngectomy was done November, 1916 also a block removal of the tissues on the same side. The wound eventually closed without a plastic operation and no recurrence had taken place up to June 1917

Case 11—S man aged 52, watchman had a cancer of the larynx involving both sides and encroaching on the anterior part of both arytenoids On account of sugar and epithelial and granular casts in the urine operation was at first deemed unwise, but later under treatment by Dr James Dwyer, the sugar disappeared from the urine and the kidney condition seemed improved The patient was a large strong and seemingly healthy man and urged that the operation be performed It was undertaken in December 1916, very little general anesthesia being used The immediate recovery from the operation was uneventful but the tracheal secretions were dry and troublesome and on several occasions it was necessary to enter the trachea and primary bronchi with a bronchoscope and remove the accumulated scales in order to prevent suffocation The wound sloughed extensively but at the end of second week began to granulate An ischiorectal abscess developed at the beginning of the third week the surrounding tissues became gangrenous and the patient died of sepsis at the end of the third week

Case 12—U., man, aged 54 for about a year had a cancer of the larynx involving both sides and arytenoids Breathing was obstructed and he had lost about 25 pounds in weight and was in a weakened physical condition A total laryngectomy with removal of the anterior portion of the esophagus was done, January, 1917 Patient had a serious time during operation from respiratory failure and every effort to restore breathing failed, until it occurred to me to distend the lungs forcibly with air Air was forced into the lungs through the open trachea almost to the point of rupture, then suddenly released and this powerful stimulus at once restored breathing On account of the feeble condition of the patient, a block dissection of the neck was not done After a plastic operation, complete recovery followed and no recurrence has taken place to date, June 1917

Case 13—T V man, aged 60, for six months had a slowly growing nonulcerating cancer of the larynx involving the right side and extending across the anterior commissure. There was cardiovascular degeneration with a blood pressure of 180 and a few granular casts and albumin in the urine. Complete laryngectomy was performed, October, 1916 A troublesome acidosis occurred which lasted a few days also some infection in the upper part of the wound The wound closed spontaneously at the end of the third week and no recurrence had appeared to June 1917

Case 14—J L D., man aged 60, had had symptoms for four months On examination a very small carcinoma was found in the anterior commissure of the larynx involving one fourth of the right cord and one eighth of the left cord Hemilaryngectomy was done July, 1913, and the upper rim of the right thyroid cartilage and a flap of mucous membrane from the right arytenoid were retained The remainder of the right side of the larynx and a liberal notch from the anterior part of the left side were excised On the second day the patient became very drowsy and the temperature reached 102 F On the third day the packing was removed, the patient was up on the fifth day and on the seventh day the tracheal tube was withdrawn The condition as described by letter June, 1917 was breathing not obstructed, speaks in a loud whisper and not easily fatigued, no cough, no recurrence.

Case 15—J C., woman, aged 46 had symptoms for eight months The carcinoma involved the left cord and part of arytenoid, had grown slowly and spread out well above and below the cord. Hemilaryngectomy was done, September, 1911, and no mucous flap was obtainable in this case, since resection included the mucosa well down on the mouth of the esophagus The resection was carried beyond the middle line behind in the arytenoid region The temperature varied between 100 and 104 F until the fifth day, and considerable local reaction appeared The packing in the larynx was removed on the third day and the packing in the trachea on the fifth day The tracheal tube was withdrawn on the twentieth day, but the feeding catheter was left in place for three weeks Six weeks later a careful resection of gland-bearing tissue of neck was done on account of some palpable glands, which proved to be benign In December, 1915, the voice was a loud whisper the opening in the larynx looked small but was sufficient for breathing, and there had been no recurrence Granulation tissue gave some trouble in this case, but was removed under suspension and cauterized with pure silver nitrate Recurrence of the cancer appeared in 1916 and the patient died In the light of present experience, I should have performed a total laryngectomy on this patient

Case 16—M G, man aged 60, gave a syphilitic history and had had hoarseness for one year The Wassermann test was positive A mass the size of bean was present on the left cord and extended upward along the lateral wall of the larynx Six weeks' treatment for syphilis was given with no result and a piece of the growth which was removed, proved to be carcinomatous Hemilaryngectomy was done, January, 1912, although a thyrotomy was contemplated The mass so involved the cartilage beneath, that the procedure was changed to a hemilaryngectomy The packing in the larynx was removed on the second day the tracheal packing on the fourth day and the cannula was withdrawn on the seventeenth day The esophageal tube was kept in place for twenty days Prior to operation the patient had a chronic bronchitis and the secretion from the lung became much increased necessitating the use of suction through the tracheal cannula every hour, day and night, for five days after the operation This procedure, I am quite sure, saved the man s life In June, 1917 the voice was remarkably good (hoarse but sonorous), chronic bronchitis caused some annoyance, there were attacks of soreness in the larynx due no doubt to the excessive secretion from below and to the cough. There has been no recurrence

Case 17—M S., man aged 53, had had chronic laryngitis for years with hoarseness increasing for four months There was a peculiar brawny induration of the right side of the larynx, without well defined limitations The patient was observed for one month and as the center of the mass was increasing an operation was determined on A total laryngectomy was advised, but the patient refused stating that he would prefer death to absence of voice Hemilaryngectomy was done June, 1913, with subsequent resection of the glands of the neck on the same side The patient was somewhat irrational on the second day and pulled the catheter out of the esophagus and as repeated attempts to replace it failed a gastrotomy was immediately performed under novocain and a little chloroform Tracheal suction was used every hour day and night for three days to unload excessive secretion The laryngeal packing was removed on the third day, the tracheal packing on the fifth day and the cannula was withdrawn on the fourteenth day There was a rise in temperature and prostration for one week, recovery eventually occurring In June 1915, the voice was hoarse but strong At the last examination I found a suspicious nodule in the neck and a thickening on the operated side on suspension which I feared was a recurrence. The nodule proved to be a recurrence, causing death five months later

Case 18—D G, man, aged 48 complained of hoarseness for five months and stated that ten years previous he had had a papilloma removed from the larynx, but could not remember from which side The mass was involving two thirds of the cord leaving the ends free Thyrotomy was attempted but the mass was firmly adherent to the lateral wall of the thyroid Hemilaryngectomy was done June, 1913, which was followed by an uneventful recovery The packing in larynx was removed on the third day and the tracheal packing on the fourth day Considerable edema in the larynx necessitated keeping the tracheal cannula in position for three weeks and the feeding tube was withdrawn on the twentieth day Patient has a remarkably good sonorous voice when effort is made, but he generally speaks in a loud whisper At the latest report, June, 1915, no recurrence had taken place

Case 19—R C, woman, aged 58, for years had a large goiter with tracheal and laryngeal distortion and also had cough and hoarseness, due to a left partial laryngoplegia The hoarseness and cough had been increasing for several months, and the examination revealed a complete obliteration of the true and false cord by a well circumscribed fungating mass Microscopic examination showed positive signs of carcinoma Hemilaryngectomy and hemithyroidectomy were performed, July, 1914 In this case I was forced to modify the procedure and I removed half of the thyroid through a transverse incision on a line below the bridge of the thyroid The trachea was then opened as low as possible and the tracheal tube inserted through a buttonhole in the lower flap The pretracheal muscles could not be used for the laryngeal wall, as they had become attenuated from stretching over the enlarged thyroid, consequently, they were carefully removed, exposing the deep cervical fascia This flap was used to form the new laryngeal wall on the ablated side, and as it was redundant, being composed of skin, superficial and deep fascia, and some fat, it was trimmed down Its anterior edge was carefully united to the mucosa of the larynx and to the skin in the anterior median line, and also to the exposed half stump of the trachea below The endeavor was to close off the larynx and trachea from the neck wound, with the hope that the infection, which was certain to come, might be kept outside the larynx The rest of the wound was left open and packed with a 0 5 per cent iodoform gauze Infection occurred from the trachea and spoiled the union between the trachea and the flap, but did not seriously affect the median union Healing required one month, the tracheal tube being worn for one month and the feeding tube for twenty-six days Condition July, 1916, was as follows voice a loud whisper, considerable tracheal contraction below larynx, causing some discomfort, normal breathing is audible a few feet from the patient on account of this stricture There had been no recurrence to July, 1916

Note—Report has just been received that the patient died of cancer of the neck, January, 1917

43 West Fifty-Fourth Street.

ABSTRACT OF DISCUSSION

Dr. D Crosby Greene, Boston In these days the tendency is, in early operable cases in carcinoma of the larynx, for many physicians to encourage their patients to try radium treatment where operative treatment may give reasonable hope of a cure There have been some cases of apparent cure by radium Up to date, however, the results of radium treatment have not been as successful as the operative treatment in early cases I, therefore, think it is of great importance that the operative technic of the surgery of the larynx should be developed, as it has been by Dr MacKenty Cancer of the larynx presents one of the most serious problems with which we have to deal, but it is one in which relief may be afforded by operation in many cases in which cure is not obtained The argument is made sometimes that total laryngectomy and hemilaryngectomy leave the patient in worse condition after operation than before, and I think that was true in the early stages of the surgical treatment of this disease, but if we use such a technic as Dr MacKenty has presented, it seems to me there is nothing lost and there is possibility of great gain in all except those cases which are obviously inoperable I have not done anything comparable to what Dr MacKenty has in this line My work has been largely with earlier cases, and I have performed partial laryngectomy in a number of cases involving a much less radical operation But I think the essential points in his operation apply not only to operations of the more radical, but to those of the less radical type

I have found that there is great advantage to be obtained by posture after operation, if we take advantage of what we know of the anatomy of the trachea, referring especially to the backward inclination of the trachea below the larynx. With the patient in the dorsal position, the natural tendency is for fluids in the trachea to gravitate backward into the chest If we reverse this position and place the patient face downward with a pillow under the chest, the patient can be made comfortable and drainage from the trachea will be much facilitated By this procedure I have had absolutely no difficulty with chest complications

I would request Dr MacKenty to make a little more clear just how he segregates the trachea from the larynx during the operation

Dr. Henry W Horn, San Francisco At the International Congress of Surgeons in London, in 1914, there was an interesting discussion on the value of hemilaryngectomy, and the consensus of opinion seemed to be that the limitations for this operation were very well marked indeed Now, the fact that Dr MacKenty is unable to determine whether a hemilaryngectomy should be performed or not is pretty good indication to my mind that if hemilaryngectomy should be performed it should be easily diagnosed before the operation, because, although in this paper Dr MacKenty has not quoted any statistics on the subject, it seems to me if any doubt whatever existed from the examination preliminary to the operation as to the necessity of hemilaryngectomy or total laryngectomy, the physician would be decidedly in favor of a radical operation

Another point is the term which Dr MacKenty applied to operation on these patients by local anesthesia, which he called "brutality" Now I differ most decidedly on that point The total extirpation of the larynx by means of a local anesthetic can be accomplished without any brutality, and in certain cases is distinctly indicated Block dissection can be carried on and the whole larynx can be extirpated by the Gluck method under local anesthesia, and in a case I have in mind we used nitrous oxid anesthesia for not over fifteen to twenty seconds just at the end of the operation to separate the larynx from the pharynx. The more or less complicated details which Dr MacKenty has gone into prove to my mind that he very much fears complications, and, as a matter of fact, complications are to be feared I think that those who have worked with Professor Gluck know that his bugbear was operations, and naturally, when one returns after such an experience, one contrasts the method in America, and I know men who have operated by the Crile method with a preliminary blocking of the neck or a preliminary tracheotomy who have found the operations much more difficult There are innumerable details which I would take exception to, not as a personal matter, but as a student and admirer of Professor Gluck

Dr. Joseph C Beck, Chicago As to doing the operation under a local anesthetic, I do not believe the statement should be made as broad as Dr MacKenty has made it. I have operated by this method and I saw no evidence on the patient's face or on the faces of those who looked on that the operation was brutal I anesthetize the posterior surface of the larynx by inserting a flexible bougie, using gauze wet with a strong solution of cocain, and leaving it there during the entire operation That anesthetizes the posterior portion completely Then, of course, I use morphin in good sized doses (and that is a general anesthetic) without resorting to ether or gas Of course, we will make use of nitrous oxid if necessary

Another point was in reference to hemilaryngectomy or complete laryngectomy I should like to know in what way Dr MacKenty can assure himself that the excision of the half larynx in the case of cancer will insure a cure When I make a positive diagnosis of cancer of the larynx I urge a total laryngectomy My experience (which follows Dr MacKenty's description of hemilaryngectomy, although his results are far superior to anything I have heard of) with that operation is that I have the recurrences just the same Are there any patients living after these hemilaryngectomies, not one or two years, but some length of time? We should expect the patient to be cured of carcinoma following laryngectomy when the process is confined to the larynx.

Another point referred to, is the closure of the fistula The voice is the thing the people object to losing, and if we can leave an opening in the pharyngeal region, if we can give them a whispering voice through the trachea into the pharynx, and use an artificial larynx, such as I have described it is a long way in advance of the ordinary methods

Dr. Lafayette Page, Indianapolis At the last meeting of the Indiana State Medical Association I reported fourteen cases of laryngectomy for cancer of the larynx, including five thyroidectomies, five hemilaryngectomies and four complete laryngectomies Since then I performed one complete laryngectomy, about ten days prior to this meeting The results in the majority of my cases have been most encouraging [Photographs were presented] As to the anesthetic, which is most important after using most of the anesthetics which have been suggested I have found scopolamin and morphin with chloroform the most satisfactory In some cases novocain with scopolamin and morphin were used with excellent results

After the larynx has been stripped and the trachea severed the Trendelenburg-Rose position is used to prevent the flow or aspiration of blood or mucus into the lungs The suction apparatus is often of use in keeping the field clear In none of my cases have I performed a preliminary tracheotomy, although Dr Crile has presented good reasons for the procedure. The only objection that occurs to me is the liability to cancer infection of the cut surface in a preliminary operation.

As to the value of hemilaryngectomy as compared with the complete, I am thoroughly convinced that there is a certain percentage of cases in which the disease is completely localized for a long time on one side of the larynx, with a low degree of virulence in which hemilaryngectomy is infinitely to be preferred I have had two cases of this type and the patients are in excellent condition one after ten years and one after thirteen years with two others who have just as promising an outlook We can never be sure, from a laryngoscopic examination how extensive is the growth Before determining positively if a hemilaryngectomy is indicated the larynx is partially stripped and split and the interior thoroughly examined. My technic is somewhat different from that described by the essayist. After the median incision the tissues are pushed aside, after elevating the perichondrium the poles of the thyroid are ligated and cut between the ligatures In pushing the tissues aside the risk of injuring the nerves and large vessels as well as the esophagus is greatly lessened In complete laryngectomy, after anchoring the end of the trachea I turn the skin in and line the end with a dermal covering instead of mucous membrane. The esophagus is well anchored to the subcutaneous tissue to avoid infiltration and fistulas

Dr. John E MacKenty, New York The chest position after larynx operations seems to me logical and was first brought to my attention this winter by Dr Greene. Dr Greene wished to know how to segregate the trachea during the operation In hemilaryngectomy the trachea is segregated by packing it with gauze during the operation The cannula is inserted at the point where the trachea emerges from the chest and the lumen of the trachea above is filled with gauze In a total laryngectomy we safeguard it by having a series of rubber tubes which fit the open trachea almost as tightly as a cork fits a bottle. A suitable sized one is inserted into the trachea just as soon as possible after the separation of the trachea from the larynx. Before opening the trachea thorough hemostasis must be secured. A suction pump is at hand for use in case the blood should escape into the trachea

I agree with Dr Horn when he says that a hemilaryngectomy is seldom indicated There are, however, cases in which hemilaryngectomy is indicated The patient sometimes governs the choice, some absolutely refusing a total laryngectomy and preferring death to a voiceless existence have seen no total laryngectomy with block dissection of he neck without pain I have often heard surgeons assert that such extensive operations can be made painless, but the patients failed to corroborate the statements when later questioned I have a strong conviction that the use of a little general anesthesia is less injurious to the patient than the harrowing experience of having his trachea cut and his larynx removed Such moments in life are best covered by unconsciousness The free use of strong cocain solutions in the pharynx and esophagus when combined with such a severe operation is far from being devoid of danger I am glad I have support on the question of the one-stage operation I have been against the two-stage operation, but a great many good surgeons have been for it I see no necessity for two when one operation seems to serve the purpose I have had no mediastinitis In one case the man died three weeks after the operation of an ischiorectal abscess As to incising the larynx for inspection it should be done only in very limited cancers If the disease is seen from above to cross or even encroach on the median line, no surgeon would be fool enough to open the larynx for inspection, since in such a condition a total laryngectomy must be done

If there is any question about the method of procedure the more radical should be adopted Dr Beck speaks of the advantages of a fistula for the attachment of a speaking apparatus It might give considerable trouble, and I fail to see how food and saliva could be prevented from passing through it

Dr Page's remarks convince me that he has had considerable experience in this work I am afraid of scopolamin after having had some rather narrow escapes with it and morphin combined I prefer to give enough morphin to produce the desired effect Chloroform is an excellent anesthetic, but I dislike some of its after-effects such as persistent vomiting which in this operation is both distressing and dangerous I object to stripping the tissue from the whole larynx in hemilaryngectomy since it reduces the nutrition of the part left behind increases the danger of infection and predisposes to subsequent cartilage necrosis

PERSISTENT TREATMENT OF EPILEPSY *

HOWELL T PERSHING, M D

DENVER

The late Dr S Weir Mitchell, in a presidential address to the American Neurological Association a few years ago, suggesting the inclusion of certain practical subjects on the program, said, "I would like to learn from some of you what you are doing for your epileptics" He was addressing specialists in neurology, many of whom, besides treating their own epileptic patients with skill and care, had enriched the world's knowledge of the subject But had the question been, What does the average physician do for his epileptic patients? I fear the answer would have to be, "Almost nothing" At any rate, in taking histories of epileptics I have only very rarely found that any line of treatment had been effectually carried out

This, I am sure, is not because physicians in general are ignorant of the disease or of the kind of treatment generally recommended It is rather because they do not expect sufficient benefit from treatment to make them undertake it with the care and perseverance that are necessary for even partial success A prescription for bromid is given, but with no special effort to fit it to the individual patient and with no explanation as to the need of continuing it The diet is often severely and irrationally restricted As a result, the patient sooner or later modifies the treatment to suit his convenience or his whims, and then stops it Attacks return, and nothing has been gained

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My thesis is that by means of the familiar bromid treatment, with certain not very irksome hygienic precautions, a great reduction in the number of attacks can generally be obtained, and that in a not insignificant proportion of cases the attacks may be prevented for years without deterioration of general health

For clinical convenience we ought, of course, to distinguish between the epilepsy which is symptomatic of a recognizable organic disease and that which is idiopathic In pathology, however, I do not believe that the distinction is radical Any organic disease of the brain from a massive tumor to the smallest recognizable spot of softening or sclerosis may so increase the irritability of the cortex as to cause epileptic attacks Similar attacks occur in cases in which no organic cause can be demonstrated, and we call them idiopathic But in idiopathic, as in organic epilepsy, one of the most constant characters is the tendency of the attacks to recur and form a series, so that each one seems to facilitate the occurrence of the next Even after a long interval of freedom we rightly expect attacks to return, unless something special is done to prevent them Now this persistent tendency to recurrence suggests an equally persistent underlying cause which is probably organic, as has been well argued by Dr M Allen Starr I do not, therefore, regard idiopathic epilepsy as merely a functional disorder of the brain, such as migraine, probably is, and still less as merely a toxic eclampsia, such as a uremic convulsion is, but as practically like organic epilepsy, in which the lesion is not progressive and is comparatively slight And as it is beyond our power to remove the underlying cause of the cortical irritability, we do not expect, strictly speaking, to cure epilepsy Even when an organic cause is known and is apparently removed by treatment, the attacks generally continue, and bromid must be given This need not discourage us, provided we make the treatment as persistent as the disease, and keep fitting it to the individual patient

The favorable cases for treatment are those in which the health is otherwise good, the attacks being of the major form only, beginning late rather than early in life, and the total number remaining small Very frequent minor attacks, together with occasional major attacks, are especially unfavorable, and minor attacks alone are generally worse than major attacks alone

The first essential to successful treatment is to tell the patient of the tendency to recurrence, even after apparent cure, and of the need of faithful continuous cooperation on his part Any legitimate encouragement should be given as an incentive, and the word "epilepsy" need not always be used If only a few attacks have occurred, it may be said that the disease is not epilepsy until the attacks have become habitual, and that this must be prevented What should be understood and agreed to is that treatment must be extended over many years, perhaps over a lifetime, even though the attacks are arrested The patient must form the habit of taking his medicine at the regular time, without rebelling or wondering when he can stop, just as he brushes his teeth; or combs his hair If the treatment is ultimately to be kept up merely as insurance, so much the better The prescription must be modified from time to time to fit it more exactly to the needs of the patient, but only by the physician, and it is never to be discontinued even for a day except by express order of the physician Such an order should not be given unless the reason is overwhelming, as in some acute disease in which the bromid would be distinctly harmful In many cases a discontinuance intended to be for a short time is prolonged, as no bad effect is at first apparent, and then, when least expected, the attack comes and all concerned must start again, much discouraged, at the foot of the hill

The diet of the epileptic should be generous and varied, but he should learn to moderate his desire for excessive quantities of food The big holiday dinner is especially dangerous A written list of articles permitted and prohibited should be given Those permitted should include the ordinary fresh meats, poultry, fish, eggs, cooked vegetables, cooked fruits, wheat bread, light cakes, tea and coffee

In the list of prohibited things should be included oatmeal, cornmeal, bran bread, popcorn, hominy, most breakfast porridges, and, in general, the bulky foods that are so much recommended as laxatives These foods are laxative because they mechanically irritate the intestine and thus indirectly irritate a sensitive skin or a sensitive nervous system Moreover, they generally contain the wrong kind of protein and a great excess of starch Nuts are especially harmful, and should be absolutely prohibited Salt is to be restricted to a small amount, therefore salt meats are to be avoided Certain raw fruits, especially apples and bananas, are dangerous Pastry, heavy puddings, very rich dishes and unusual mixtures must be avoided Alcohol and tobacco are not for the epileptic

In giving bromid the aim, of course, is to find such a dose, so combined with other remedies, that attacks will be prevented and yet the patient not seriously suffer from its prolonged administration My average beginning dose for an adult is 20 grains three times a day in a liquid mixture If that prevents attacks, but bromism appears, the medicine is not interrupted at all, but reduced 10 or 15 per cent at a time, until a dose that can be tolerated is found Toleration may be increased by adding about 10 minims of tincture of nux vomica to each dose and also by adding arsenic, preferably as sodium cacodylate, from 0 002 to 0 005 gm (from 1/30 to 1/12 grain) A laxative is often necessary, and the aromatic fluidextract of cascara can be added to serve this purpose If the amount of bromid is inadequate to restrain attacks, it is to be increased cautiously When a dose is found which is sufficient and is well tolerated, it is to be continued for a long time and then cautiously reduced Dropping from three doses a day to two of the same strength is too great a change to make at one time, but one might change from three doses of 20 grains to two of 25 grains

But here is a matter of detail which may seem too simple and elementary for the attention of this section, but which is so vital and so commonly neglected that it is necessary to emphasize it The physician must not only know how much bromid by weight he wishes to give the patient but he must know just how much the patient actually gets Eighteen grains may be too little and 22 grains too much It not infrequently happens that a ready-made mixture of bromid is prescribed, without memory of its exact strength, with the direction to take a teaspoonful (which may mean anything from half a dram to 2 drams) and so the patient gets a dose somewhere between 5 grains and 40 grains without any certainty as to the exact amount

Now suppose this dose is not just right and an increase or decrease of 10 per cent is desirable, how is it to be accomplished? Is it any wonder that bromid gets the reputation of being ineffective or of being so poisonous that its effects are worse than those of the disease?

The remedy, of course, is simple, that is, for the physician to write the prescription giving the exact amount of each ingredient and then to have the patient measure the dose, which is usually a fluidram, in a small graduate glass, which will measure from 10 to 60 minims exactly But vigilance is necessary It is wonderful how much perversity patient and druggist can show in defeating the plan to have the dose accurately measured

In case the major attacks are held in check, but the minor ones remain as frequent as before, it will do little or no good to advance to large doses of bromid Instead, from 5 to 10 minims of tincture of digitalis or half a grain of spartein added to each dose may be of distinct service Or, if there is much nervous irritability, from 2 to 4 minims of the deodorized tincture of opium with a corresponding increase in the laxative may be better Occasionally, especially of late years, I have used small doses of thyroid with advantage, and some patients with low blood pressure might profit by the addition of pituitary substance but I have not tried the latter in this disease If status epilepticus supervenes, instead of trying to control the convulsions by increasing the amount of bromid one should keep this at the usual amount and give chloral in 15 grain doses every two hours, for the first few doses, or even every hour If this does not quickly reduce the frequency of attacks, inhalations of chloroform should be used If respiration is threatened, atropin and strychnin should be given hypodermically in the usual doses

For many years past I have followed the treatment here outlined in all of my private cases and have carefully recorded the clinical course in each The results have been very gratifying, and although I have not undertaken to put them in statistical form, I wish to give some illustrations

Case 1—A girl, aged 13, was seen in March, 1901 Her father's mother and sister had been mentally diseased The patient had four convulsions in her second year She had three typical major attacks in January and February, 1901 Her general health was good. She received bromid treatment. Sept. 18, 1901, there was a severe convulsion, the interval being seven months Bromid was increased but, May 10 1902, she had a very severe convulsion and her teeth were injured in falling The interval was nearly eight months Bromid was again increased, and, April 18 1903 she had a light attack, after an interval of eleven months She has had no attacks since, but treatment is still kept up though gradually reduced to one dose at night. The interval is now more than fourteen years The patient's general health is excellent[1]

Case 2—A girl aged 14, was seen in March, 1905 Two of her mother's sisters died of melancholia One of her father's uncles died insane The patient was born in difficult labor Rickets seemed indicated, doubtless due to proprietary food She walked first at 20 months Cleft palate was successfully operated on at 5 years of age. She was always lacking in vigor Somnambulism was present in childhood The first known epileptic attack was in September, 1901, in which there was dizziness with probable unconsciousness In November 1901 she was seized with a fit of staring and became unconscious Aug 3, 1902, she had a light convulsion and a similar one in November, 1902 Then she took bromid steadily by order of another physician, and had no attacks for two years, when bromid was discontinued In December, 1904 during an exciting revival meeting, she suddenly stood up, turned round and sat down, she was unconscious, but there was no convulsion She had similar attacks in February and March, 1905 Menstruation was regular, but her general health was frail She was put on careful, continuous bromid treatment She was troubled by acne which was fairly well controlled by sodium cacodylate internally and ointment of yellow mercuric oxid Up to June, 1909, after an interval of four years and three months there were no attacks whatever and both mental and physical health were greatly improved Indirect information from time to time indicates that the treatment has been continued and that there have been no attacks with maintenance of improved general health

Case 3—A man, aged 36, when seen in June 1909, stated that his general health had always been good In November, 1907 he had a nocturnal convulsion and two others at intervals of ten and four weeks the next occurred in November, 1908 all being nocturnal In January, 1909, he fell from his chair with a cry convulsion and frothing Then followed more nocturnal attacks, once he fell out of bed He had about ten major attacks in all the last May 31, 1909, after an interval of one week Minor attacks were very numerous Persistent bromid treatment was given There have been no attacks of any kind during an interval of eight years The patient works hard and his general health is perfect He has been taking only one dose daily and is now careless about that. He will be warned to continue regularly, as the danger is doubtless still present This case belongs to a type which is generally to be regarded as unfavorable, both major and minor attacks having been numerous for many years, and an organic change no doubt being present. Yet the result of treatment has been very gratifying

Case 4—A boy aged 8 was seen in October 1900 His father has some kind of nervous spells His father's cousin and niece were epileptic His mother was tuberculous His mother's father had 'neuralgia of the heart," and was probably hysterical An older sister was very nervous The patient had rickets in infancy At 5 years of age, the patient had a convulsion at the beginning of a cold and again in a few weeks at the onset of measles In December 1898 and in January, 1899 he had repeated violent falls said to be without unconsciousness, but he often struck his head violently, and once he broke his teeth In February, 1899, status epilepticus occurred there being fourteen attacks with frothing and unconsciousness in one day He was then put on bromid and had no attacks for a year, when the dose was cut down and the attacks returned, averaging one a month He sometimes injured his head in falling Oct 2, 1900 I put him on systematic treatment Nov 23, 1900, there was an attack of unconsciousness probably due to overeating of apples Dec. 10, 1900, there were three attacks In January, 1901 there was one attack. Then there were no more attacks for more than eleven years, treatment being continuous but with many modifications because of frail general health, which, however, gradually improved In May, 1912, he had a contusion of the head and a gap in memory, probably due to an attack, but possibly the result of a blow by thugs He now omitted medicine, and his general health was not so good In April 1913, he had a spasm immediately following a severe reproof by his parents After this the blood pressure was low with faintness and palpitation, although he was able to work. Very little improvement resulted from addition of digitalis to nux vomica. In December, 1915, he had an attack on the way home at night He lay in the street for some hours, and slept heavily afterward There have been no attacks since. He is able to work, and his general health is fair

Case 5—A man, aged 37, when seen in October, 1912, had his first attack at 20, which was nocturnal and a second at 23, which was similar Then he had five or six major attacks each year, later they came on monthly There were minor attacks of mental confusion almost daily, sometimes many times in one day He had had 15 grain doses of bromid irregularly and minor attacks were especially frequent when it was omitted Systematic treatment began, Oct. 28 1912 He had four minor attacks on successive days after five weeks' freedom He has had no attacks of any kind since, during an interval of more than four years In June, 1916, an attack of iritis and a positive Wassermann test showed the patient to be syphilitic, and appropriate treatment was added The date of the original infection was not determined

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[1] This patient had two major attacks July 4 and 5 1917 showing the single daily dose of 30 grains to be inadequate.

Case 6—A man, aged 47, was seen in February, 1914 An older brother had an aphasic form of migraine His sister was very nervous At about 10 years of age he had four or five "fainting spells" In the last ten years he has had four or five spells of momentary unconsciousness, twice with injury in falling The last attack came on at breakfast, Feb 19, 1914 He suddenly lost consciousness and fell forward, cutting his face on a glass Although systolic pressure was only 105, there was a diagnosis of epilepsy instead of syncope Bromid in rather small doses, but continuously, was prescribed, together with tonics and a laxative He did well There was possibly an attack in October, 1914, after unusual indulgence in candy and port wine Then he remained actively at work with no sign of attack until Feb 22, 1917, when he fell unconscious shortly after a very early rising He had traveled with jolly companions in an automobile about 200 miles since noon the day before He had eaten luncheon and supper at unusual hours, and of coarse and unusual food. Supper was followed by a late card game with cigars and whisky Renewed cautions were given, and no attack has occurred since

Case 7—A man, aged 43, a railroad station agent, seen in December, 1912, had had typhoid at 17 For about a year afterward he had hemianopic attacks and very brief but severe headaches, apparently migrainous The tongue and the cheek were occasionally found on waking to have been bitten during the night In November, 1912, he had a major nocturnal convulsion with passage of feces and a similar one three days later Another major attack occurred, Dec 15, 1912 His general health was good Syphilis was regarded as fairly excluded without a Wassermann test He was put on the usual treatment After two years with no sign of attack, medicine was reduced to two doses daily In June, 1916, the patient had neglected the medicine, had taken an automobile trip and eaten an unusually big dinner when excited and fatigued A nocturnal convulsion resulted and the tongue was bitten, the interval being three years and six months Medicine was resumed with renewed exhortation There has been no trouble since.

Case 8—A laboring man, aged 33, seen in May, 1916, had had spasms in infancy and has always stuttered His health is generally good He has had about fifteen major and fifteen minor epileptic attacks in the last two years The usual bromid treatment was perfectly well borne There have been no attacks of any kind during an interval of over one year

Case 9—A man, aged 40, a cigar maker, seen in April, 1914, was a neurasthenic, with dyspepsia, constipation, emaciation and despondency The conditions of his life were bad, owing to poverty and limited opportunity and capacity to work A major epileptic attack occurred in February and again in April, 1914 He was given a small dose of bromid which had to be further reduced Distinct improvement as to the neurasthenic condition followed the addition of three minims of deodorized tincture of opium to each dose There have been no attacks in an interval of three years and two months The patient's general health is better

Case 10—A woman, aged 37, was seen in October, 1913 Her father was hypochondriacal She had severe typhoid at 16 She has borne three healthy children About 1903 she began to have attacks of tachycardia with dyspnea and cyanosis, lasting from a few minutes to several hours without disturbance of consciousness About 1908 she began to have convulsions with absolute unconsciousness, always nocturnal She had about twelve of these up to July, 1911 Then there was no attack for a year and eight months, during most of which time she was in a sanatorium under ideal conditions, except that the diet was vegetarian In February, 1913, conditions remaining the same, a nocturnal convulsion caused profound discouragement In June another convulsion occurred, in August three in one night and in September three in one night All of these were preceded by fatigue or emotional strain The treatment was difficult on account of anorexia, emaciation, indigestion and constipation with indicanuria, rheumatic disturbances and pyorrhea The lungs, heart and kidneys were normal Ten grains of bromid morning and noon, with 20 at night, were not tolerated, and the amount was reduced A course of salol with small doses of calomel was given two days in each week. The teeth were treated, one with pus at the roots was extracted After two years' residence in Denver, where she was free from attacks and better in every respect, except for slightly diminished weight, she returned to her home in a distant state Here, while tired and nervous, impelled by an abnormal appetite, she ate an excess of salted nuts A nocturnal attack occurred, the interval being two years and three months Since then she has been in Denver often enough to permit careful regulation of diet and medicine The teeth are still a menace, and their necessary treatment is a tax on endurance, but their condition is greatly improved There has been no further attack, the interval now being one year and six months

Metropolitan Building

ABSTRACT OF DISCUSSION

Dr L. Pierce Clark, New York In my thirty-four recovered cases of epilepsy whose records of arrest of attacks run from three to twenty years, only one arrest was brought about by the use of bromids The successful plan of treatment was in part by dietetic methods, but more that of mental treatment. The keynote of the latter was to teach the epileptic an adaptation to the life stresses, to thoroughly objectivate the patient into a useful and interesting life of play and work. The use of bromids to bring about this serenity and balance of mind is, I believe, a mistake The bromids dull the energy and interest and often disarrange many or all of the bodily functions Three criteria in future should be considered in marking any case as a permanent arrest from attacks These are (1) cessation of attacks, (2) general improvement in conduct and working capacity, and ability to stand the various ordinary life stresses without epileptic reactions, and (3) a precise psychometric testing for the absence of deterioration or that which may have been overcome The latter test should show an enriched and flexible emotional response to word tests, no great delay in time reactions and the absence of perseveration, the tendency to react by the same word or idea to a series of unrelated ideas given in the test. I quite agree with Dr Pershing's title, that the only kind of treatment for epilepsy should be persistent, it is the only one that has been at all successful in the past and when one comes to understand the nature of epilepsy, and especially the mental makeup of the epileptic, one will comprehend why even this plan of treatment so often fails to produce an arrest or cure

Recently I have thoroughly examined the character makeup of twelve hemiplegic epileptics, and in all there was a neurotic heredity not dissimilar to ordinary idiopathic epilepsy All the individuals had the epileptic constitution or personality before their epileptic attacks began, or even before their palsy, showing that the cerebral insult probably makes mandatory a sequential epilepsy in all cases of infantile cerebral palsy, which accords with the clinical facts as we know them The absence of the epileptic constitution or its mental stigma, though convulsive attacks may be in evidence from various causes, warrants our withholding a diagnosis of essential epilepsy in any case The mental factor, therefore, is the important element in diagnosis as well as treatment.

Dr W J G Dawson, Sonoma State Home, Calif Fifty years ago there was established an epileptic hospital on Blackwell's Island We were then just beginning treatment with bromids This was probably the first hospital in America set apart for the treatment of epileptics We expected to make many cures by the bromid treatment, and there were improvements at first, but at the end of six months the patients were about the same as at the beginning The result of our bromid treatment in California is just the same as the results after six months' treatment on Blackwell's Island I do not believe that any bromid will cure epilepsy It will suppress the spasms, but I doubt if it will cure We know so little about the cause of epilepsy I saw an abdominal operation on Randall's Island the other day on an epileptic boy 19 years of age, and they found intestinal adhesions They said they had done all they could and then "turned him over to the plumber" to remedy conditions We certainly do not know much about the cause It is a complex disease, the combined conditions may result from different causes sometimes of the brain sometimes of the intestinal canal How often in private practice we find spasms in children caused by eating too much cake candy, pies or puddings, and in epilepsy the trouble is much the same The cause may yet be found in the abdominal organs We have 330 cases in our Home, and we have used almost everything even snake venom (crotalin), and we find nothing does any permanent good but regular diet and regular habits

Dr. W H Kidder Oswego N Y That epilepsy is a complex instead of a definite entity seems somewhat doubtful There is a physical and psychic picture that is very definite It is different from the convulsions of children's illnesses The use of bromids is so general that one must be familiar with it If one approaches the use of bromids from the psychic standpoint, more good will be accomplished than if they were used merely to suppress convulsions If used with proper care and to produce a feeling of serenity in the patient a good result will be obtained If they are used merely to control convulsions we shall not get good results I believe that bromids help us to produce a mental attitude that we want to get in the patient and it will thus help to change environment by giving the patient a more serene state of mind

Dr. N A. Pashayan, Schenectady, N Y I have seen 174 cases in the last twelve years Three cases in adults started late in life The Wassermann test was positive The cases were idiopathic epilepsy and they all responded to antisyphilitic treatment

Dr. L. M Crafts Minneapolis I rarely have had occasion to use bromids and never more than a 5-grain dose I think the speaker referred to the psychic effects of the bromids That is true as far as quieting the patient is concerned They are not only quieting they are depressing The most important thing however is a regular regime and complete regulation of the life of the individual helping digestion, eliminating all meats aiding bowel kidney and skin elimination and keeping the patient free from strain and excitement That is the way to get results Persistence is important, and it is often found that from two to five years' treatment must be given before results are obtained I have had many cases show complete subsidence of attacks with this method I think dependence on bromids is archaic and should be abandoned They cloud the results and often are clearly harmful.

Dr. E. D Fisher, New York I make a distinction between the essential form of epilepsy and that occurring in later life In early life we have a condition of mental change but in later life we do not find the mental changes that occur in children. It is natural that this should be so Epilepsy in childhood is associated with an undeveloped brain and we must look for an etiologic factor which can never be the same as in adult epilepsy I refer to epilepsy of circulatory origin The disease can be helped by bromids, which we must use to alleviate the symptoms, with strict attention to the intestinal tract and the diet.

Dr. H T Pershing, Denver I agree that mere suppression of the attacks would be of little avail, we must have a discontinuance of attacks along with improvement in physical and mental health But the attacks themselves are a very serious disadvantage to the individual, and if we can give the patient long intervals without any attacks we thus do a great deal to effect his readjustment with his world Most of my patients are able to work. We can judge by the condition of the patient if he is able to do things better than before, and this is the test of the treatment, rather than the mere suppression of the attacks Skilful use of the bromids will help a great deal in attaining this end I do not think that Dr Dawson is right in applying to these cases the results of treatment on Blackwell's Island Private cases of epilepsy are much more favorable than institutional ones The serenity of the patient in these cases is undoubtedly of great importance, and every epileptic should be treated from the psychic standpoint as well as from the physical, but the utmost one could do by mental treatment alone would not accomplish nearly as much as the combination with proper medication In a small proportion of my cases I have had evidence of syphilis with a positive Wassermann Antisyphilitic treatment has been added but I do not expect to cure epileptic attacks with the latter treatment even when syphilis was the original cause

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A STUDY OF ARTERIAL SOUNDS*

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This study was undertaken in order (1) to gain evidence for the transmission of the heart sounds in the arteries, (2) to secure evidence of the cause of the sounds heard in the brachial artery in taking blood pressure, (3) to determine whether or not any relation exists between arterial sounds and blood pressure, or between arterial sounds and arteriosclerosis, and (4) to determine whether or not arterial sounds have clinical and diagnostic value Two hundred cases have been taken in regular order, some being persons in good health, some private patients, and some ward patients In each case the name, age, sex, and diagnosis were recorded, then the pulse rate, and systolic, diastolic and pulse pressure were registered, the condition of the arteries was classified as normal or arteriosclerotic, and the heart sounds were classified as clear, split or murmurs The stethoscope was applied *without pressure* over the right and left carotids subclavians, brachials and femorals The presence, absence and character of the sounds and murmurs in the arteries were noted and recorded The acuteness of one's hearing increased and the sounds became more clear as the work progressed

Little work has appeared in English on this subject Laennec[1] was the first to notice the existence of arterial sounds and murmurs, and speaks of the "bruit normal" Corrigan[2] discovered that an arterial murmur developed in a tube or an artery at the point of pressure and constriction, or where the fluid flows from a narrow to a wider part Hamernyk[2] described the two sounds usually heard in the carotid and subclavian arteries Kiwisch,[2] Theodore Weber,[2] and Chaveau[2] agreed with Corrigan, and further showed that the murmur due to constriction and the resulting vibrations follow the blood stream Conrad[2] first raised the question as to whether the sounds arose in the arteries or were transmitted from the heart, and Marey[2] noticed that sounds occur in the arteries in aneurysm and in diseases of the heart

Richardson[2] claimed that blood is a poor sound conductor, and all subsequent work since his time has credited this premise, which is probably entirely wrong Friedrich[2] finally concluded that the first sound in the artery was due to arterial tension, or was arterial in origin, and the second sound is cardiac in origin Shoder[2] denied even that any of the arterial sounds were transmitted from the heart Niemeyer[2] first seems to have grasped the idea that "a stream of fluid producing pressure may carry sound due to vibrations originating from valvular defects The vibrations observed for example in cases of mitral defect must therefore take place in the ventricle if there is insufficiency, in the auricle if there is *stenosis*" Traube[3] thought that hyperpressure and arterial sounds were related, and that in hyperpressure there were no sounds in the femoral arteries This study proves the reverse to be true Weil's[2] work, published in 1875, is the most exhaustive on the subject, and he concludes that the first and second sounds heard in the carotids and the subclavians are transmitted from the heart, and that arterial murmurs originate in the vessel

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* Read before the Section on Practice of Medicine at the Sixty Eighth Annual Session of the American Medical Association New York June 1917

[1] Laennec Mediate Auscultation and Diseases of the Chest pp 706 707

[2] Quoted by Weil Auskultation der Arterien und Venen 1875

Much confusion and many variable conclusions exist in the literature, due in large measure to the failure to separate terms accurately, and a certain inexplicable hesitancy to admit the evidence that proves the two arterial sounds are transmitted from the heart As noted by Weil and Frank,[4] and accented by Wiggers,[4] neither the heart sounds and murmurs nor the arterial murmur can be classified musically, but all belong to the category of murmurs The Germans have classified the sounds in the arteries that are short, sharp and quick ending as "Tone," and those that are prolonged and less sharply defined as "Gerausche" These in English would be tones and noises, but modern usage would call the first, sounds, and the indefinite, swishing and blowing vibrations, murmurs Every noise in the artery is therefore either a sound or a murmur The murmurs may be further classified as (1) pressure murmurs due to the constriction of an artery at any point from external pressure, as from a stethoscope, (2) natural murmurs that originate in the arteries without external pressure, as in the right subclavian or the dynamic or slack abdominal aorta, and (3) the valvular murmurs, fainter and swishing, the transmitted blows of cardiac murmurs The last are more blowing and less vibratory in type than the first two They are of the same pitch, but softer than when heard over the heart

Sounds and murmurs in the heart and arteries conform to the laws of the physics of sound, which may be summarized as follows All sound is due to vibration, whether occurring in air, fluid, or solid mediums Sound takes time to travel, needs a material to travel through, and is a disturbance of the wave kind[5] The heart sounds may be transmitted through any of the surrounding mediums, both through the blood and down the blood stream by means of the vibration of its particles, aided also by the blood movement, and through the tissues because the vibrations continue through the wall of the heart, the soft parts, the bones, the skin, and the air to the ear Indeed, Cattani,[6] under the title of "The Arterial Fremitus or the Vibrating Pulse," describes the intense thrill frequently felt by palpating along the pulsating artery, his "vibrante pulso," or vibrating pulse

I have been unable to find the rate of the transmission of sound through the blood or tissues Such transmission through different mediums is determined by their rigidity and their density, rigidity increasing the rate, density decreasing it Liquids have much higher rigidity in proportion to their density than gases, and carry sound at much higher velocity Water confined in tubes does not carry sound waves at the same velocity as a loose bulk of the liquid in which the propagation is unrestrained by the walls of the tube The rate is increased by a rise of temperature, and solutions carry more rapidly than pure solvents The calculation of the velocity of sound through a large, free bulk of human blood would not be difficult, but confined in arteries of varying elasticity, the rate would be affected not only by the density of the stream, but by the character of the soluble matter, and the tone of the arterial wall Practically, however, the channel distances being in meters, or less, the actual time required for sounds from the heart to reach exposed sections of the arterial tubing would differ very little from that of a salt solution of the same density and temperature, or at the rate of 1,550 meters per second, as against 1,435 meters per second in bulk water Dissolved gases retard the rate of propagation In the short distance between the heart and the carotids and the subclavians, the heart sounds would be transmitted practically instantaneously

Sahli[7] states that "two sounds are heard over the carotids and subclavians, a systolic from the systolic tension of the vessel wall, and a diastolic transmitted from the aortic valves" Weil, however, noted that abnormal sounds in the heart were transmitted to the carotids, but he called them sounds, rather than murmurs The evidence is clear that the first sound is not due to the systolic tension of the vessel wall, but rather is transmitted from the mitral closure, just as the second is transmitted from the aortic closure

The following facts prove that both first and second sounds are transmitted from the heart, and that mitral and aortic murmurs, both direct and indirect, are also thus transmitted The mitral closure as transmitted to the carotids and the subclavians is duller and fainter, as a rule, than the aortic closure

1 These sounds occur in orderly sequence at the same rate, and apparently at the same time intervals, and of similar tone as the heart sounds In Case 86 of our series with a double, bigeminal pulse and a pause, four sounds occurred in rapid succession in the carotids and the subclavians, followed by the same pause In Case 166 with mitral regurgitation and *myocarditis the sounds of premature contractions* in the heart were transmitted and plainly heard in the carotids and subclavians

2 A clear, normal mitral closure occurred in seventy-five cases, and was heard in the carotids and subclavians seventy times, or 93 per cent

3 An accented mitral closure in the heart is heard as an accented heart closure in the carotids and subclavians three times in three cases, or 100 per cent

4 A split mitral closure occurred in forty-eight cases in our series and was followed by a split first sound in the carotids thirty times, or 62 per cent , and in the subclavians twenty-five times, or 52 per cent

5 Mitral regurgitation murmurs occurred in fifty-eight cases, and were heard fifty-one times, or 90 per cent , in the carotids, and fifty-two times, or 90 per cent , in the subclavians

6 Loud murmurs of the mitral valve, either presystolic or diastolic, often replace the clear mitral closure in the carotids and subclavians Case 116, a negro boy, aged 4 years, with loud, blowing presystolic and systolic mitral murmurs, with a loud ringing mitral closure between, had transmitted to

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[3] Traube, cited by Ziemssen *Cyclopaedia of the Practice of Medicine*, 8 Rosenstein Diseases of the Circulatory System, pp 135 141

[4] Wiggers Circulation *in* Health and Disease Philadelphia, 1915, p 174

[5] Article on Sound, Encyclopedia Britannica, 25, 437

[6] Cattani, G Il Fremito Arterioso o Polso Vibrante, Pensiero med, 1913, 3, 561 568

[7] Sahli Diagnostic Methods, p 348

his carotids and subclavians the loud, blowing presystolic murmur, then the pause, during which the sharp mitral closure occurred, followed by the loud, blowing, mitral regurgitant murmur This one case is proof of the transmission and transmissibility of the mitral closure and of murmurs at the mitral orifice

7 Six presystolic mitral murmurs were heard five times in the carotids and subclavians, or 84 per cent

8 The clear, aortic closure occurred ninety-five times, and was heard in the carotids and subclavians ninety-five times, or 100 per cent

9 The aortic second sound was accentuated in forty nine cases and was heard in the carotids and subclavians forty-seven times, or 96 per cent.

10 The aortic second sound was split in sixty-two cases, and was in the carotids fifty times or 80 per cent., and in the subclavians forty-seven times or 71 per cent

11 There were twenty-six cases of aortic regurgitation, of which twenty-five were heard in the carotids, or 96 per cent, and twenty-four in the subclavians, or 92 per cent Often an impure aortic closure may show a lisping or a leaking second sound in carotids and subclavians

12. The aortic first bruit occurred in ten cases, and was heard nine times in the carotids and subclavians, or 90 per cent.

13 The murmurs of aortic stenosis, as is well known, are transmitted into the subclavians and vessels of the neck In Lynch's[8] case this murmur was heard over the right radial at the wrist and wholly masked the succession of sounds during the systolic reading of the pressure.

TABLE 1—ARTERIAL SOUNDS CLASSIFICATION OF CASES STUDIED BY DISEASES AND SEX

Diagnosis	Age Males										Age Females										Total Men and Women
	1 10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	Total	1-10	11 20	21 30	31-40	41 50	51-60	61 70	71-80	81 90	Total	
Good health		2	6	1	4		[illegible]			16			7	8			2			17	32
Pregnancy										0		6	10	2						18	18
Nervous diseases		1			4	1	1	2		9				4	2	1	1			8	17
Renal diseases						1	2			3		1		3	5	4				13	16
Respiratory diseases	1	1		1				1		4			5	3	1					9	13
Anemias		1		1						2		2	2	1	1					6	8
Syphilis		1	3	3		1				8			2	2						4	12
Circulatory diseases	1	2	6	6	8	6	1			30			2	4	3	7	4	1	1	22	52
Acute infections			2			2				4	1	1	3	2						7	11
Digestive diseases				4	1	1				6			3	3						6	12
Miscellaneous				1				1		2		1	3	2	1					7	9
	2	8	17	17	17	12	6	4	0	83	1	11	37	34	13	12	7	1	1	117	200

14 In Case 89, a sharp, short, blowing murmur occurred between the mitral and aortic closures with no relation to either This was probably a congenital defect in the interventricular septum, with the passage of blood apparently from the left to the right ventricle during the latter two thirds of systole, clear mitral and aortic closures occurred in the carotids and subclavians

15 Mitral presystolic murmurs with the vibrations passing through the ventricle and aortic valves are heard plainly in the carotids and subclavians, but Austin Flint murmurs due to the spraying blood passing backward into the heart through the opening in the aortic valves are not heard in the carotids and subclavians This is plainly demonstrated when we compare Case 116 already noted, with Case 120, in which a mitral regurgitation and an A^1 bruit and an A^2 regurgitation were heard in the carotids and subclavians, but a most beautiful loud, spraying Austin Flint murmur heard plainly in the fifth space at the apex was not heard in the long pause in the vessel.

16 Experimental proof in the laboratory by tearing a segment of aortic and mitral valves would probably be very easy

Matterstock,[9] in 1878, first called attention to the split diastolic arterial sound, which he thought was due to a double contraction of the ventricle Weil failed to notice this, and Matterstock is probably in error in attributing this to the double closure of the ventricle In our experience these split sounds in the arteries all have a split aortic closure or a split mitral closure in the heart These split closures are due not only to the separate closure of the two valves of different sides, but far more frequently to the different time closure of the segments of one valve The latter is transmitted from the heart Sixty-two of the 200 cases showed a split, or duplicated aortic closure, and this split closure was heard as a split second sound fifty times in the carotids and forty-seven times in the subclavians In Case 54 it was heard in the brachial artery before the application of the cuff In twelve cases this split closure was heard in the brachial artery in the second, third and fourth phases, never in the first or fifth phases of pressure readings

In no case was the split sound heard in the brachial in taking pressure where there was not a split aortic closure in the heart As the air escapes from the cuff, a murmur and a sound develop The murmur is usually heard first and in the first and second phases, and often disappears before the sound The murmur is due to the passage of blood through the narrow opening into the wider space of lower pressure and diminished peripheral resistance below Bard[10] has shown that if a cuff be applied below over the forearm and the pressure raised above the systolic pressure and held, and blood pressure is taken from a second cuff applied over the arm, no murmurs are heard in the brachial artery With the forearm cuff applied, the condition of wider area, lower pressure, and diminished peripheral resistance below is absent because the arteries are distended

The sound heard on taking the pressure is next to be accounted for It is often clear and loud, may be split, and usually ceases with the diastolic pressure, or when the artery is open again Murmurs may originate at the point of constriction in an artery, but sounds hardly originate at such a point We know that the aortic closure sound is transmitted anteriorly through the chest wall and into the carotids and subclavians, and throughout the blood stream This brachial sound

1 Occurs at the same rate of the pulse
2 Usually disappears when the lumen of the brachial is open after diastolic readings
3 Is split only when the aortic valve is split
4 Occurs usually in the second, third or fourth phase
5 Is probably the transmitted sound from the closure of the aortic valve

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[8] Lynch, O B Queries and Minor Notes The Journal A. M A. March 31 1917 p 995

[9] Matterstock G K. Die Auscultatorischen Erscheinungen der Arterien mit besondere Berücksichtigung der Herzkrankheiten Deutsch. Arch. f klin. Med 1878, 22, 507 549

[10] Bard L. De l'appréciation des résistances périphériques par l'auscultation des souffles artériels, Arch d mal. du cœur 1915 8, 105 111.

6 The same sound is heard in the upper third of the brachial artery above the cuff In this upper area it was heard in one case when the cuff was inflated, whereas the systolic pressure was only 96 It occurred above at 68 to the minute, the same as the patient's pulse rate, and disappeared at the same instant that blood passed through the brachial artery covered by the cuff, or at the instant of the systolic pressure This subject of the upper cuff sound needs investigation Subcutaneous fat, experience in auscultation, and the proper placing of the cuff low enough down on the arm are factors in hearing this upper sound clearly

TABLE 2—SUMMARY OF CARDIAC SOUNDS AND MURMURS AND PERCENTAGE HEARD IN THE ARTERIES

Heart		Carotids		Subclavians		Brachials		Femorals	
	No	No	%	No	%	No	%	No	%
Mitral sound	75	70	93	70	93				
Mitral split	48	30	62	25	52				
Mitral regurgitation	58	51	90	52	90				
Mitral stenosis	6	5	84	5	81				
Aortic second sound	95	95	100	95	100	28	29	46	48
Aortic second accented	49	47	96	47	96				
Aortic second split	62	50	80	47	71				
Aortic regurgitation	26	25	96	24	92				
Aortic first bruit	10	9	90	9	90				

7 This sound is also heard when the stethoscope is applied with pressure It is evident, therefore that it is not due, as is so commonly stated, to the resonance of the cuff, and that its cause must be proximal to the cuff, since it is heard above it, rather than distal because it is heard below it

8 It is probable that when an artery is open this transmitted aortic closure sound passes through the brachial artery, and is restrained by the walls of the tube, whereas when the artery is partially or entirely closed the sound vibrations cannot continue easily down the blood stream, but pass unrestrained through the walls of the artery When a rock is thrown on the smooth surface of a pond, many ripples follow each other in concentric circles to the shore, but when the same rock is thrown on the running waters of a small river, the ripples are so faint and few and move such a short distance that they are often not noticed The surface ripples are destroyed by the momentum and motion of the river water The blood is of greater density and under greater pressure than the river water, and is moving at a more rapid rate, and sound vibrations are more apt to pass down stream when the channel is open, or to pass laterally when the channel is narrowed or closed

Dehio,[11] in 1913, gave twelve cases of febrile disease, anemia, heart lesions and exophthalmic goiter in which he heard spontaneous sounds in the femorals He states that these sounds occur in cases of hypopressure in the majority of cases, and, as a rule, when the diastolic pressure is very low and the pulse pressure high His theory is that in such cases there is an abnormally low blood pressure with defective filling of the artery, and these sounds are due to vibrations of the vessel wall, and the murmurs to the swirling of the fluid in the vessel This is the first attempt to show a relation between arterial sounds and blood pressure, but twelve cases are probably too few in number to permit a conclusion He seems to fail to consider that the femoral sound may be a transmitted aortic sound Indeed, the difficulty is to prove that what he calls a spontaneous femoral sound exists at all It is true that murmurs are due to the vibration of the vessel wall, but it is difficult to account for the sounds in the vessels unless we consider them transmitted from the heart

In our series for the purpose of determining whether any relation exists between blood pressure and arterial sounds, 97 cases were divided into 3 groups Group 1 consists of fifty-one cases with a systolic pressure of 10 and below (Table 3), Group 2 includes thirty-seven cases with a systolic pressure between 125 and 175, and Group 3, nine cases with systolic pressure of 200 and above Between Group 1 and Group 2 are omitted the cases of systolic pressures between 100 and 125, and between Group 2 and 3 are omitted those cases with systolic pressures between 175 and 200 These omissions permit clearer conclusions because of their breaks

In the ninety-seven cases in the three groups, the first and second sounds in the carotids and subclavians are equally and easily transmitted, and are not affected by pressure However, when we reach the brachials and the femorals we find that in Group 1, 10 per cent were heard in the brachials and 24 per cent. in the femorals, and in two cases sounds which we call 1M and which we assume were transmitted mitral closure, were heard in addition in the femorals In Group 2, 5 per cent were heard in the brachials and 22 per cent. in the femorals In Group 3, 77 per cent were heard in the brachials, and 33 per cent in the femorals This would seem to indicate on the basis of the transmission of the brachial and femoral sounds from the heart (1) the higher the pressure, the greater the transmission in arteries more distant from the heart, and (2) in those arteries near the heart there is no relation between arterial sounds and blood pressure.

The natural arterial murmurs occurred in sixty cases, fourteen times in the carotids, with an average pressure of 118-65-53, forty-four times in the subclavians, with an average pressure of 109-66-43, and twice in the femorals, with an average pressure of 107-66-41 However, the extremes of systolic pressure vary between 107 and 90, and the extremes of diastolic pressure between 95 and 30 In taking many of these cases, I gradually came to feel that the natural arterial murmurs were more frequent in the normal or low pressures, though they certainly do occur in the highest pressures They probably occur in very high pressures in cases of irregularity and calcification of the intima in advanced arteriosclerosis It is often impossible, except occasionally over the aorta, to prove such conditions It is probably true, therefore, that

TABLE 3—LACK OF DEFINITE RELATION BETWEEN ARTERIAL SOUNDS AND BLOOD PRESSURE

Blood Pressure	Cases	Average Age	Average Pulse	Average Blood Pressure	1 M in C	2 A in C	1 M in S	2 A in S	2 A in B	2 A in F	1 M in F
I —100 and below	51	29	83	96-59-37	50	51	46	45	5	12	2
II —125-175 inclusive	37	46	84	145-83-62	34	36	34	26	2	8	
III —200 and above	9	84	57	227 127 100	8	9	7	9	5	3	

1 Natural arterial murmurs occur chiefly in the carotids, subclavians and femorals in 30 per cent of our cases

2 As a rule they occur in pressures of a low normal

3 They are found occasionally in high pressures

Arteriosclerosis seems to have no effect on the easy transmission of the heart sounds through the arteries, according to Table 5 The sounds were plainly heard in the vessels in sixty-three cases of arteriosclerosis, and in 137 normal vessels, or 100 per cent of the series In sixty-three cases of arteriosclerosis there were thirty-two with cardiac murmurs, of which thirty-one murmurs were heard in the vessels, or 97 per cent In normal vessels there were forty-three with cardiac murmurs of which forty-one were heard in the vessels, or 95 per cent This difference of 2 per cent is hardly sufficient to indicate any marked difference in the transmission of murmurs from the heart in arteriosclerotic vessels as compared with normal vessels

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[11] Dehio, K Ueber das pulsatorische Tönen der Arterien, St. Petersb med Ztschr, 1913, 38, 259 263

TABLE 4—ARTERIAL MURMURS

	Cases	Average Age	Average Pulse	Average Blood Pressure	Highest Blood Pressure			Lowest Blood Pressure		
					Systolic	Diastolic	Pulse	Systolic	Diastolic	Pulse
Carotids	14	31	88	118-65-53	170	80	70	94	50	40
Subclavians	44	28	83	109-66-43	170	95	70	90	50	15
Femorals	2	43	93	107-66-41	110	78	65	105	65	27

The murmurs and sounds that occur in the femoral artery have been the battle ground in arterial sounds since Duroziez[12] first discovered his double murmur in 1861 In 1867 Traube[13] described his two peculiar phenomena in the femoral artery associated with aortic insufficiency The first is a double murmur of which the second blow comes from pressure on the femoral artery The second is a double sound in the femoral artery, and is not, as Traube thought, pathognomonic of aortic insufficiency, but occurs in other conditions Of Weil's[2] 600 cases he found only seven with Duroziez's double murmur, and only two with Traube's double femoral sound and both of these were in cases of mitral stenosis and aortic regurgitation Many explanations of these two series of phenomena have been given, but a discussion of all of these would occupy another paper Suffice it to say at this time that probably the true explanation of the pistol shot sound is the transmission of the aortic second sound in aortic insufficiency, and of the double sound of Traube is the transmission of the mitral and aortic sounds from the heart through the blood stream Natural arterial murmurs may originate in the femorals as in the carotids and subclavians, and pressure simply produces a pressure murmur in the femorals as elsewhere Certainly none of these are pathognomonic of aortic insufficiency as has been asserted Dehio,[11] Heynsius,[14] François-Franck,[15] Schultz[16] and Friedreich[17] have all written extensive papers in an attempt to explain the femoral phenomena The femoral sounds are interesting theoretically, but are of little value clinically, except as interesting clinical phenomena

It is evident that the transmission of sounds of the left heart to the carotids and subclavians gives four additional places for diagnosis in addition to auscultation over the precordial area The arrhythmias may be noted in the vessels, particularly premature contractions, bigeminal pulse, sinus arrhythmia, and to a less extent auricular fibrillation In three cases of emphysema the vessel sounds were clear and better than over the heart Weil four times found them in this disease rather than sounds at the base of the heart It is difficult sometimes to distinguish between the mild aortic stenosis and a simple A^1 bruit, and the vascular sounds help to a correct conclusion The murmurs are often transmitted to the vessels with such clearness that I have had hospital interns who had never listened over carotids hear them the first time In myocarditis and hearts in a gallop rhythm one often hears a clearer sound in the vessels than over the heart It is always well to remember that it takes a good heart muscle to make a clear heart sound or a strong murmur In cases of syphilitic aortitis with fine, high, faint closure of the aortic valves, or the older cases with clanging, tympanic closure confirming evidence is heard, particularly in the carotids As a rule, the sounds in the left carotid and left subclavian are clearer than in their fellows, because the former vessels originate more directly from the aorta without the interposition of the innominate The sounds in the right subclavian are also of less value because of the greater frequency of the natural arterial murmur in the right subclavian, due probably to natural pressure in systole from the right rib together with its snugness to the right lung, particularly during inspiration Too often we take a cardiac murmur as a status quo affair and fail to remember that it is an evolutionary and progressive condition, which begins maybe with an acentuation of the valves, followed by a splitting, and then a murmur, or it begins with an endocarditis and inflammation Valve destruction, the regurgitation, perhaps followed by mitral stenosis may develop finally These finer details in the evolutionary pathology of a valve lesion are often clearer in the left carotid than over the heart

CONCLUSIONS

1 Sounds and murmurs originating at the mitral and aortic valves are transmitted throughout the arterial system, and are heard usually in the carotids and subclavians, only sounds more rarely in the brachials and femorals

TABLE 5—SOUND AND HEART MURMURS TRANSMITTED

	Sounds			Murmurs		
	Cases	Number	Per Cent	Cases	Number	Per Cent
Arteriosclerosis	63	63	100	32	31	97
Normal vessels	137	137	100	43	41	95
Total	200	200	Av 100	75	72	Av 96

2 There is little evidence of a relation between arterial sounds and blood pressure, except that the higher the pressure and the greater the pulse amplitude, the more apt are sounds to exist in the femoral arteries

3 It seems that sounds and murmurs from the heart are transmitted practically as well in arteriosclerotic vessels as in normal vessels

4 Sounds in the femoral arteries are of little, if any, clinical value, and are not pathognomonic of aortic insufficiency

5 It is probable that the murmur over the brachial artery heard in taking blood pressure is due to the

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[12] Duroziez P Du double souffle intermittent crural comme signe de l insuffisance aortique Arch gén de méd 1861 Series 5 **17,** 417-443 588-605

[13] Traube Ueber zwei eigentümliche Phänomene bei Insufficienz der Aortenklappen Berl klin Wchnschr 1867

[14] Heynsius, A Die Tone und Gerausche im Gefasssystem Leyden 1878

[15] François Franck Essai sur la mode de production des souffles artériels en géneral et du double souffle crural en particulier Arch de physiol. norm et path 1899 Series 5 **1,** 659 666

[16] Schultz Werner Ueber Doppeltonbildung an den Cruralgefässen Deutsch med. Wchnschr 1905 **31,** 1381 1383

[17] Friedreich N Ueber Doppelton an der Cruralarterie sowie über Tonbildung an den Cruralvenen Deutsch. Arch f klin. Med 1877 78 **21,** 205 258

constriction of the artery, and that the sound is due to transmission from closure of the aortic valve

6 The arterial sounds in the carotids and subclavians, particularly the left, often have additional clinical value in the study of the heart

Candler Building

ABSTRACT OF DISCUSSION

Dr A E Roussel, Philadelphia The essayist fails to tell us whether the louder murmurs are carried through in a louder degree than the faint murmurs It seems to me that the faint murmurs would be carried to a less distance than the loud ones Another point is whether the arterial tension has not had much to do with the transmission of the murmurs, with high arterial tension the murmurs should be transmitted better than with low pressure Those working in tuberculosis work occasionally see cases in which the degree of consolidation in the lungs is not marked, but in which a systolic murmur is heard somewhere over the lung area This is due to constriction of the artery by tuberculous masses I have been particularly interested recently in working out the oculocardiac reflex, which is obtained by pressure over the eyeball, maintained for a period of two minutes This will cause a diminution in pulse frequency in most persons and an increase in some others The neurologists claim that an acceleration or retardation of ten beats or more is indicative of some trouble in the central nervous system, as in disseminated syphilis I have noted an additional sign which, as far as I know, is original, and which I take pleasure in recording here In a case of chronic myocarditis in which I only suspected the presence of a murmur, pressure on the eyeball for two minutes gradually brought out this murmur in a very decided amplitude Since then I have been studying this sign in over 200 cardiac cases, and I can say now that continued ocular pressure as directed in faint murmurs will markedly accelerate those murmurs and bring them out, and in cases of functional murmurs the results would seem to be the opposite Functional murmurs seem to disappear or diminish and organic murmurs to increase This is a simple test, easily applied and I believe will prove to be of real value I am carrying out experiments with the electrocardiograph and polygraph and hope to try the new phonocardiograph before the publication of a paper on this subject

Dr. R A Bate, Louisville, Ky Since the basis of the paper seems to depend on the contractions of the heart itself, I should like to ask Dr Roberts what part he thinks the variation in the causes of the heart contraction plays in the various heart sounds? All of us have observed that some heart murmurs disappear, and I wish to ask if the explanation on the internal secretion basis is right McKenzie has shown that the heart will act for days when taken out of the body, and certain conclusions have been drawn from this We know that whatever excites this contraction is not conveyed through the nervous system On the internal secretion basis, this must be in the heart itself, like secretin in the alimentary tract. Does the quantity of this secretion, which possibly is formed in the heart itself, or whatever excites cardiac contractions, play any part in the making of the murmurs? It has been shown pathologically that many murmurs are not due to changes in the valves

Dr Stewart R Roberts, Atlanta, Ga We attempted to investigate the relation between arterial sounds and blood pressure We found in those arteries more distant from the heart in hyperpressures of 200 mm and above, that the sounds seemed better transmitted to the femoral artery than in cases of hypopressure The cases were divided into three groups according to the blood pressure (1) those of 100 mm and below, (2) those of 125 mm to 175 mm, inclusive, and (3) those cases of 200 mm and above In the hypopressure cases we came to feel that the murmurs occurred in the artery more frequently, as distinguished from the sounds in the femoral artery in hyperpressure Murmurs seem more common in the hypopressure cases, and the sounds in the hyperpressure cases, The cardiac murmurs, on the other hand, if found in the heart are found in the vessels, and vice versa There are exceptions to this, however In emphysema with a distended lung overlapping the heart, in pericarditis with effusion, and in fibrinous pericarditis in which the sounds of the heart are ruined by the friction sounds, the heart sounds are heard better in the carotids and subclavians I cannot speak as regards the relation of the ductless glands and the arterial sounds It seems to me that as a problem it is speculative, and that we have no facts on which to base a conclusion In this research it was all we could do to train our ears to hear the sounds and murmurs in the arteries and we had no time for speculative philosophy

INDICATIONS FOR THE MASTOID OPERATION IN ACUTE OTITIS MEDIA *

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Involvement of the mastoid is ordinarily regarded by the laity and, I am sorry to say, by a large proportion of the medical profession, with an undue amount of terror If physicians would remember, and explain to their patients, that the mastoid is simply one part of the middle ear, and that every case of acute middle ear inflammation is really a mastoiditis, this false impression would probably, to a large extent, be corrected A middle ear acutely inflamed and properly drained by free incision of the drum membrane recovers spontaneously This is really a case of mastoiditis recovering with a minimum of surgical interference If this drainage — either on account of the severity of the inflammatory process, the particular topography of the mastoid in the individual case, or the extreme virulence of the infecting organism — is insufficient, then a mastoid operation is indicated, that is, it is necessary to drain the middle ear through a posterior incision rather than by an incision through the drum membrane

INDICATIONS

Certain signs and symptoms indicate insufficient drainage as the result of incision of the drum membrane, rendering imperative drainage by posterior incision, and this term will be used hereafter in this paper as synonymous with the complete mastoid operation

Pain —The indication for operative interference which most influences the patient is the symptom of pain The persistence of severe pain after incision of the drum membrane is, in some cases, an indication for the mastoid operation After free and, to the surgeon, satisfactory incision of the drum membrane, if spontaneous pain in the ear persists for from twenty-four to forty-eight hours and is sufficient to require the administration of the opiate, pain alone is a sufficient indication for opening the mastoid I have had a number of these cases, as has any physician who has followed a special practice for several years, and it has been my experience, almost invariably, that in patients in whom spontaneous pain is the only indication for operation, the mastoiditis is of the hemorrhagic variety and that the mastoid cells are extensively developed

Temperature —I mention this indication merely in order to dismiss it with a few words Some of the worst cases of mastoiditis that I have seen have run an absolutely afebrile course. The temperature is apt to be more elevated in infants and young children than in adults. A persistent high temperature, or a remittent temperature with exacerbations, naturally calls for exploration. The point that I would emphasize is this, that many of these cases run an afebrile course and that the absence of temperature is no contraindication to operation.

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Local Tenderness.—This is one of the most valuable signs. It must be remembered, however, that in cases in which the mastoid is well developed and of the pneumatic type, and when the cells are superficially located, the mastoid may be exquisitely tender within twelve hours after the inception of an acute otitis. This early tenderness is not an indication for operation. It means merely either a hemorrhagic mastoiditis or a very pneumatic mastoid with the cells filled with serum. Many of these cases, which are tender for a few days after the inception of the attack, recover without operation. The situation of the tenderness depends entirely on the particular topography of the mastoid in the individual case. Large cells at the tip will be exceedingly tender in a few hours. After tympanic drainage has been established, this tenderness will gradually disappear. Antrum tenderness is a much more valuable sign. One sign which I consider particularly significant is a recurrent tenderness, that is, the initial tenderness following the middle ear attack disappears. This tenderness is first found at the tip, and is most severe here. Antrum tenderness is insignificant. Then the mastoid becomes practically insensitive to pressure. In the course of a few days, the tenderness returns and then the tenderness is most marked over the antrum. This is a very significent sign, and ordinarily indicates an involvement of the mastoid which will be relieved only by posterior drainage.

Otoscopic Examination.—The signs found on instrumental examination are, to my mind, the most important of all. These consist of evidence of insufficient drainage of the tympanomastoid space through the small incision in the drum membrane and narrowing of the canal at the fundus, that is, in a persistent bulging of the upper and posterior portion of the drum membrane, together with a sinking of the corresponding adjacent meatal walls. This sign, present ten days after the inception of the acute infection has, in my experience, been an almost pathognomonic indication for operation. Of course, there are exceptions to all good rules, and occasionally this rule has gone wrong in my own experience. I should state, however, that the exception has not occurred in more than 1 per cent. of my cases.

Bacteriologic Examination.—Much information can be obtained by studying the bacteriologic content of the discharge. When the discharge is already present, or in early cases in which an incision of the drum membrane has been performed, it is my invariable practice to make a smear of the aural discharge. While, of course, such a smear shows many organisms, it is usually possible to determine the predominating organism which must come from the middle ear. To cite a case in point, suppose we have a smear with the following report: staphylococci, a large number of bacilli, diplococci, and an occasional chain. This condition would undoubtedly mean one of two things: either a streptococcus infection, or a pneumococcus infection. The staphylococci and the large bacilli are undoubtedly canal contaminations and are consequently disregarded. In every case the bacteriologist should be directed to stain the smear so as to determine the presence or absence of a capsule surrounding the existing organisms. The *Streptococcus capsulatus* is always a dangerous organism and one which almost invariably demands operative interference by the posterior incision. I have already reported thirteen cases of *Streptococcus capsulatus* infection in the middle ear in which the mastoid operation was necessary only in two. Most of these cases, however, were drained at a very early date by incision of the drum membrane. All of these cases were in private patients and have been under subsequent observation for years, so that I know that subsequent operation was not necessary in any of these cases. It should be taken, however, as an invariable law that a *Streptococcus capsulatus* infection must be watched with exceeding care and that no such case should be considered safe until the middle ear has returned to a perfectly normal condition, the hearing returned to the standard previous to operation, and all canal signs have absolutely disappeared. I have seen many cases of this kind, both in hospital and private practice, which came to mastoid operation from two to six months after the drum membrane had healed. In these cases the otoscopic picture was sufficient at the time of examination to indicate the necessity of operative interference. In many of my own cases mentioned in the foregoing, drainage through the drum membrane was sufficient to render such interference unnecessary.

The amount of discharge in any doubtful case is an indication for operation. The sudden cessation of discharge, with the canal signs indicative of sudden interference with drainage, is an indication for immediate operation. On the other hand, a very profuse discharge persisting for more than three weeks after incision of the drum membrane is also an indication for operative interference. An acute inflammation of the middle ear which is going to recover after incision of the drum membrane will recover within three weeks from its inception, and usually within ten days. A profuse discharge lasting more than three weeks has, in my experience, always been indicative of the fact that tympanic drainage was insufficient and that the case would do better if posterior drainage were established.

Duration of the Inflammatory Process.—The length of time that the middle ear inflammation has continued is also a valuable factor in determining the necessity for operation. As stated in the previous paragraph, an acute otitis media demanding incision of the drum membrane should clear up within ten days to two or, at the utmost, three weeks. If there is a history of spontaneous rupture of the drum membrane and a purulent discharge lasting for four or five or six weeks, it is much safer to establish posterior drainage at once, rather than to take a possible chance of the process being controlled by milder measures. It is true that some of these patients will recover, that is, that the discharge will stop and the opening in the drum membrane will close. Most of these patients, however, are not cured. There are apt to be subsequent attacks, and an operation will probably be necessary at a later period.

Course Following Acute Symptoms.—The date of the primary attack of acute inflammation in the middle ear is also important in certain cases seen after apparent recovery has taken place, that is, after all discharge has ceased and the patient comes complaining of certain indefinite symptoms, such as headache, general malaise, loss of flesh, indefinite muscular pains, and other symptoms which seem to indicate an unexplained toxemia The hearing in these cases is ordinarily much impaired, the ear feels full, and there may be some slight disturbance of equilibrium The canal signs here are extremely valuable Those indicated under the previous heading of canal signs will almost invariably be seen in these cases It is interesting to note that the history of the attack of acute otitis media may be very indefinite I have seen old cases of this kind, and by that I mean, cases extending over six or seven months, in which the primary earache was slight and the discharge almost negligible, and yet the patient had never been well since the acute otitis In this class of cases, the duration of the middle ear inflammation, and the symptoms of the patient from the inception of the attack to the time that he is seen by the surgeon, constitute the important facts in the history

I know of no better means of making a diagnosis in these cases than by taking the history in conjunction with the otoscopic appearances A middle ear that does not clear up after an acute otitis is a focus of disease — no matter if the drum membrane has healed — and the appearance on otoscopic examination will almost invariably demonstrate this fact Those cases with few symptoms are frequently cases of *Streptococcus capsulatus* infection and, as in many cases seen in consultation, the bacteriologic character of the discharge has not been determined at the time of the primary attack, this fact should always be borne in mind I have been so impressed with the importance of cases of this character that it has become my invariable practice in doubtful cases to recommend an exploratory operation My experience has been, invariably, that this operation was not exploratory, but really was an emergency operation In other words, I have never failed in a single doubtful case of this character to evacuate pus from the mastoid

History of Repeated Incisions —I see, each year, a certain number of cases giving a history of three, four or five weeks' duration, or sometimes three or four months' duration, in which there is a persistent discharge, some pain, and a history of repeated incisions of the drum membrane It may be taken as a rule to which there are few exceptions that in a case of acute otitis media one single competent incision of the drum membrane will drain the middle ear and adjacent structures perfectly if such drainage is possible through such a small opening The moment that it is necessary to repeat these incisions, the indication for posterior operation becomes imperative Repeated incisions of the drum membrane simply relieve temporarily the tension within the tympanomastoid space This temporary relief is really a great menace to the patient, because hereby the important symptoms of pain and temperature are masked, and both patient and surgeon are deluded into believing that the disease is mending, while in fact the inflammatory process is steadily attacking the deeper structures I have only one word for repeated incisions of the drum membrane, and that is a word of absolute condemnation

Impairment of Hearing —I have said nothing up to this point about the impairment of function of the ear as an indication for operation Whenever, in a case of acute middle ear inflammation, either with or without solution of continuity of the drum membrane, we find a persistent profound *impairment of function*, this is in itself an important indication for operative interference The middle ear, being a small space, should be easily drained by incision of the drum membrane, or, in the milder cases, the secretion resulting from the inflammatory process should be absorbed after a moderate interval of time If there is sufficient involvement to cause profound impairment of hearing persisting for two or three weeks, this is an indication that the mastoid cells have become so involved that the middle ear drainage alone is not sufficient, consequently posterior drainage is indicated

Involvement of the Static Labyrinth —Symptoms indicative of this complication call for prompt operative interference These symptoms are vertigo and spontaneous nystagmus — usually toward the diseased side, more rarely toward the opposite side Such symptoms may occur without actual labyrinthine involvement They usually mean, however, a rather extensive infiltration of the bony structures immediately surrounding the labyrinthine capsule, and operative interference in all such cases is indicated

Meningeal Symptoms —Certain symptoms referable to the meninges may occur in obscure cases By this I mean localized headache — usually indicating an extradural abscess, or severe general headache — a much more dangerous symptom Spinal puncture helps us in diagnosis in these cases It should be remembered that a spinal fluid under pressure, with an excess of globulins, and a failure to reduce Fehling's solution, is not necessarily an indication of a general meningitis Moreover, I have seen a very high cell count in the spinal fluid where a simple mastoiditis alone was present These signs are an imperative indication for a complete mastoid operation and also for the exposure of a large area of dura about the mastoid wound They are not necessarily, however, indications of a diffuse meningitis

Roentgenoscopy —In all my cases of mastoiditis, roentgenoscopy has been of great value This is particularly true in those cases in which the history is *indefinite — when there* is a history of acute otitis occurring several months prior to the time of seeing the patient, then an almost complete cessation of the aural symptoms, and yet on examination the canal presents certain well defined changes Invariably, in cases of this character, roentgenograms in conjunction with the roentgenographer have enabled me to locate a distinct focus of suppuration within the mastoid, and at operation we have never failed to find the pus in the location shown in the roentgenogram The value of roentgenograms in the earlier cases is perhaps not as evident Cases of acute otitis will show a cloudy mastoid within the first ten days In doubtful acute cases it is only by the study of roentgenograms, taken at intervals of a week or ten days, that we are able to arrive at a definite diagnosis In the doubtful cases, however, and especially in cases in which the acute symptoms have been slight and when we suspect a *Streptococcus capsulatus* infection (and this has, incidentally, been determined at operation in most of these doubtful cases), the roentgenograms have been of the greatest value

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ABSTRACT OF DISCUSSION

Dr. John F Barnhill, Indianapolis The variations from the classical course which many mastoid patients take often interest us most, sometimes puzzle us most, and it is of these I wish chiefly to speak Mastoiditis cases may be divided into three or four classes One class develops rapidly, often acts very ugly, such as those that sometimes follow an acute infectious disease where the ossicles are swept away, the temperature is high the hearing is greatly impaired, and the tenderness is marked over the mastoid There should be no difficulty in the diagnosis of this class Then we have that more common class of cases which come on following let me say, a severe attack of tonsillitis, adenoiditis or rhinitis with earache rupture and discharge But the patient does not get on just right The ear goes on discharging too long At the end of ten days or two weeks, which the essayist put as the limit it has not ended in a cure and we begin to ask why, especially if the discharge is excessive I agree with Dr Dench that in any case continuing ten days or two weeks, if the discharge is excessive, it is a positive indication for mastoid operation So much pus as we frequently see at the end of ten days or two weeks could not possibly come from so small a cavity as the tympanum but must come, of course from the mastoid antrum and cells Then again we have the class of case that has some, possibly much, discharge from the ear in which the patient looks septic, his strength is not up to par, he is not able to do the things that he wishes to do His temperature may be entirely normal, he may sleep seven or eight hours, but often he will waken after midnight with a dull achy indefinite pain back of the mastoid which he does not always narrate, but admits on questioning With the history of continued discharge, of septic appearance of the patient, of increased leukocyte count, the bacteriologic findings in the aural secretion, clearly there is mastoiditis and it is proper to open the mastoid

Then we have the class of case that we designate anomalous, in which there has not been any discharge from the ear at all, but some aural affection has been going on for quite a while and symptoms have arisen that are not always clear There often is doubt, but if, with all these symptoms and with all the tests that we are now able to make, we still have some doubt, it is undoubtedly good surgical practice to perform an exploratory operation

There are cases in which the differential diagnosis is most important of all For example, it sometimes is difficult to distinguish between so simple a thing as otitis externa and mastoiditis I have recently seen such a case.

Dr George W MacKenzie, Philadelphia In looking over the classical indications we find mentioned pain, temperature, local tenderness, canal signs, bacteriologic examination, amount of discharge, duration of discharge, and so forth Now, as mentioned by Dr Barnhill, there are cases in which the temperature runs normally, where there is no tenderness present where there are practically no canal signs, where the bacteriologic examination of the discharge is impossible because of an intact membrane. These are atypical cases, and are prone to occur in those instances in which the external corticalis is so thick that it is quite impossible for the external periosteum to become affected, hence there occurs no tenderness In those cases with very thick and resistant external wall we find the greatest variety of complications How are we to recognize the presence of pus in the middle ear and mastoid in this class of cases, and especially when the membrane is intact? Let us look at the right normal membrane, the anterior margin of the hammer handle is quite sharp, while the posterior margin is not so sharp, because it lies more deeply and not in contact with the membrane. Furthermore, in the case of a normal membrane we are able to distinguish more or less distinctly the long process of the anvil In the presence of fluid in the cavity, this is not seen Furthermore, the normal membrane is highly polished and reflects a brilliant cone of light. In the case of secretion behind the membrane, the membrane is rough on the surface, so that we get a dull reflex, there is narrowing of the hammer handle, as the posterior edge of the hammer is obscured by the opaque secretion. An incision of the membrane in these cases will usually permit of the escape of secretion sufficient for bacteriologic examination

Two other points I would like to mention A long time ago I was taught that in case of doubt one should operate Since then it has become axiomatic with me, so that I might say in nine cases out of ten one will be rewarded by finding sufficient evidence to have warranted the operation The other point is that if one decides to operate, the operation should be done thoroughly, for in those cases terminating fatally, the necropsy shows that all the sources of infection had not been reached at the time of the operation

Dr. George F Keiper Lafayette, Ind Dr Dench has given us all the means of diagnosis which we ordinarily use, but there is one which he did not mention, and that is the transillumination of the mastoid by the use of the closed speculum with a window in its side near its tip This is of great value in arriving at our diagnosis of the condition of the mastoid I would not however, rely absolutely on the speculum in order to decide as to the extent of the inflammation Here comes the question of exploratory operation Sometimes the otologist is undecided whether to make an exploratory operation The abdominal surgeon does it every day and feels justified Why should not we do the same thing? It is an axiomatic conclusion which they have come to—when in doubt they make their diagnosis clear by an exploratory operation, and it is true that 50 per cent. of the patients operated on at the great Mayo clinic are not diagnosed at all until the abdomen is opened

I want to mention a case in which an exploratory operation was perfectly justifiable This patient came in complaining of intense tenderness back of the ear This was before the day when we directed so much attention to pyorrhea alveolaris I observed the case closely, made a blood examination and had roentgenograms made, and finally, with all the symptoms of a classical case of mastoid trouble, I recommended an exploratory operation We found an absolutely clear mastoid What was the matter? We were somewhat chagrined, and yet we had guarded ourselves by saying that this would be an exploratory operation A few days after that one of the first articles on pyorrhea alveolaris came out, and after reading it I went to this patient and had his teeth examined and had one tooth extracted, and in a few days the trouble promptly cleared up In other words, some of our mastoid cases may be due to conditions within the mouth and our examination of our patient should not be complete until we have used all the means of diagnosis to which attention has been directed

Dr. C. R Holmes, Cincinnati I agree that the limit of ten days is all that we should give in mastoid trouble where the symptoms continue as indicated by Dr Dench I have taken occasion to experiment by making an exploratory operation early, even down to the third day, and have found that the mastoid was involved at that early date although the symptoms were not positive enough for operation There is no doubt that the mastoid is involved in a very large percentage of all acute ear infections, just the same as the nasal sinuses are involved We know that in many cases the passage from the middle ear to the antrum is very large In cases like that the drainage will be free and the trouble may clear up without operation But we have cases in which there is a small opening, where the mucous membrane itself is closed off, and bacteriologic infection goes on, then, of course, a different procedure will be indicated The point I wish particularly to call attention to is that early exploratory operation with ordinary aseptic precautions is free from danger and should be performed

Dr E. B Dench, New York With reference to Dr Barnhill's remarks, I think sleeplessness is a good point. A patient may present no other symptoms indicative of involvement of the mastoid except that he does not sleep well. In my experience that has been almost always indicative of extradural abscess It is not invariable, but still it is a valuable symptom

I am glad the discussants have spoken so favorably about exploratory operations I think we should perform them more frequently than we do Dr Barnhill spoke of the differential diagnosis between an otitis externa and mastoiditis I think often the Roentgen ray will clear up the diagnosis

What Dr MacKenzie said about the luster of the membrane is perfectly true In almost all cases that is one of the classical symptoms The lusterless drum is as surely indicative of acute otitis as the red drum One discussant spoke of secretion in the middle ear and incision of the drum membrane for diagnostic purposes The presence of fluid in the middle ear can be determined by catheter inflation quite as well as by incision In these doubtful cases also, the Roentgen ray will clear up the diagnosis

As to transillumination, I do not think it is of any use at all The Roentgen ray does give valuable information, and I think any man would hesitate to operate because the transillumination was cloudy, if he did not confirm that by the Roentgen ray In all cases in which I have performed operations of this kind and found pus, the Roentgen ray has told me it was there

As to the teeth in connection with this trouble, I remember that one of my medical students was extremely angry at me because I would not operate on his sister for mastoiditis because she complained of a pain in both ears, but I sent her to a dentist and he found two impacted wisdom teeth The teeth certainly constitute an important factor in these cases, and I think we should clear them up before we perform any operation I quite agree with Dr Holmes as to early operation I have operated on the second day It is my experience that in an operation on the mastoid I get more rapid healing if I operate after the cells are thoroughly involved, than if the patient is operated on earlier

TYRAMIN AS AN ADJUNCT TO MORPHIN IN LABOR *

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The employment of morphin in labor has become frequent in recent years, probably owing to the "twilight sleep" propaganda more than to any other influence Briefly, morphin exhibits in this connection three important effects, the first desirable, the other two untoward, namely, analgesia, respiratory depression in the child, and delay of labor

It is unnecessary to review in detail the interesting history of scopolamin-morphin anesthesia, including its rather haphazard introduction by Schneiderlin,[1] its development in obstetrics by the untiring enthusiasm of Gauss,[2] and its modification by the pharmacologic critique of Burgi[3] (pantopon [pantopium hydrochloricum]), and of Straub[4] (a morphin-narcotin mixture, used by Siegel,[5] Libby[6] and others) Today its practice, so far as justified, is limited to a few who are fortunate enough to possess the combination of unusual facilities and almost superhuman patience

Since Hatcher[7] seven years ago pointed out the almost complete lack of theoretical justification for the employment of scopolamin in this connection, little if any new evidence has been introduced in its favor, nor has our knowledge of its obscure pharmacology been very appreciably increased This is due in part to unusual difficulties, especially the varied manifestations of scopolamin action, not only in different species but also in different individuals The unstable character of the alkaloid has further increased the confusion

In our laboratory, attempts have been made to throw more light on the relation of scopolamin to the three actions of morphin enumerated above

To study the cerebral effect, Dr J F Cobey has made a number of experiments on mice by the method of Fuhner[8] and found evidence of some synergic action of the two drugs in this respect, supporting the results of Kochmann,[9] Burgi[10] and their pupils The respiratory effects of the scopolamin-morphin combination were tested by Dr L L Maurer on an extensive series of rabbits, but we failed to convince ourselves that morphin depression of respiration is constantly affected by its combination with scopolamin In a small number of cases the depression was delayed or preceded by acceleration

Finally, as regards the action of scopolamin and morphin on the uterus itself, Mr N H Copenhaver[11] and I were able to show no effect of either or both drugs on that organ, either isolated or in intact anesthetized animals, in doses at all comparable to those which are employed clinically In unanesthetized animals, however, we[12] were able to show ultimately that small doses of morphin, by an effect definitely located in the cerebrum, tend to inhibit the rhythmic action of the uterus This point has not been followed with respect to scopolamin

From the results noted above it will be seen that we could contribute no new theoretical considerations in support of the employment of scopolamin-morphin anesthesia

The value of morphin itself in labor has, however, been acknowledged by those best fitted to pass judgment In view of this it would seem that a substance having actions more clearly understood and more desirable than those of scopolamin might be found which could be suitably combined with morphin Particular effort should, of course, be directed to antagonizing the two most untoward effects of morphin

The use in this connection of tyramin (para-hydroxy-phenyl-ethyl-amin hydrochlorid) or some related substance was suggested by the studies of Bry [13] She pointed out the rather prolonged respiratory effect which tyramin and other phenylethylamin derivatives produce in mammals, and called attention to their oxytocic action which, however, had been noted by Dale and Dixon[14] in their studies of tyramin Thus the two desired effects, respiratory and uterine stimulation, are exhibited by one substance

Tyramin is an active principle of ergot, being derived by bacterial action on tyrosin-containing proteins Its power to raise the blood pressure (associated with a close chemical relationship to epinephrin) has been made use of in therapy in connection with shock, for example by Clark[15] and Hoyt [16] This point deserves more attention because of the advantages which this substance possesses over epinephrin in

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eliciting a more prolonged response and in lending itself readily to subcutaneous injection

In seeking a morphin antagonist we first investigated a series of phenylethylamin derivatives in the hope of finding one even more suitable than tyramin Dr L H Nahum found, however, that tyramin hydrochlorid is but one tenth to one fifth as toxic as the hydrochlorids of phenylethylamin itself, and its simpler benzyl derivatives (kindly prepared for us by Prof T B Johnson of Yale)

Adopting tyramin, therefore, as the most promising substance available, Dr Cobey studied its effect on morphin narcosis in mice, and concluded that any influence which it might have on the cerebral action of this drug was probably negligible

Dr Maurer[17] then investigated the respiratory volume and the condition of the respiratory center in rats subjected to various doses of tyramin and morphin, alone and combined He was able to demonstrate very clearly an antagonism between the two substances which was best exhibited when they were administered in the ratio of approximately three parts of tyramin to one of morphin Most significant was the observation that the respiratory action of the morphin often remained in abeyance during a period when marked analgesia was present

We next transferred these studies to man, and have, in collaboration with Dr W C von Glahn,[17] corroborated the antagonism in five normal individuals We concluded that doses of from 40 to 50 mg of tyramin administered simultaneously with a therapeutic dose of morphin (16 mg) will completely antagonize the depressant action of morphin on the respiration The respiratory stimulation produced by tyramin is probably indirect and due to an augmentation of oxidative processes, for the drug has a tendency to increase the respiratory exchange

The uterine action of tyramin, which has been elicited in laboratory animals by Dale and Dixon,[14] Guggenheim[18] and others, was first demonstrated on the excised human uterus by C C Lieb [19] Hitherto it has not been satisfactorily investigated in the obstetric clinic Heimann,[20] Zimmermann,[21] Jäger[22] and Krosz[23] all employed doses which were far too small (maximum 2 mg) to be effective In the last three cases the issue is confused by the combination of tyramin with histamin Even Kehrer's[24] employment of from 10 to 20 mg intramuscularly, and Sharp's[25] use of 30 mg subcutaneously may scarcely be considered a fair test

The employment of tyramin-Roche in effective doses as an adjunct to morphin is now under investigation by Dr C L Deming on carefully selected cases of normal labor in the obstetric clinic of Dr J M Slemons at Yale The number of cases thus far has been too few to justify broad statements It may, however, be said that the laboratory data are being well corroborated The dosage employed is 16 mg of morphin sulphate given hypodermically in solution with 40 mg of tyramin In the absence of contraindications, this injection is given when discomfort becomes marked in the first stage of labor Analgesia appears to be as complete as though the same dose of morphin were given alone

The respiratory rate of the mother becomes slightly increased rather than decreased, and usually remains somewhat accelerated throughout The condition of the children has been quite satisfactory, no tendency to asphyxia having been observed In every case the frequency of the uterine contractions has been increased within five minutes after the injection, and this augmented activity maintained throughout The increase has usually been from five minute intervals to intervals of about two minutes with an augmentation, temporarily at least, in the strength of individual contractions Forty mg of tyramin produce a temporary rise in blood pressure usually amounting to 20 to 25 mm , this seems to be negligible in normal cases, but should be borne in mind and followed closely

It is hoped that more complete data can soon be offered, but there seems in the meanwhile no objection to the employment of tyramin and morphin by those obstetricians, and only those, who are thoroughly versed in the use of morphin in labor

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A STUDY OF LOW BLOOD PRESSURES ASSOCIATED WITH PEPTONE SHOCK AND EXPERIMENTAL FAT EMBOLISM *

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Two very widely used methods of inducing a condition of low blood pressure in animals, simulating that observed in surgical shock in man, are peptone poisoning and fat embolism It may not be amiss at this time to emphasize certain fundamental differences in the character of the low blood pressures brought about by these two methods The details of the experiments which have been made on dogs in this laboratory will be published later

1 After the injection of peptone, the fall in the blood pressure is very rapid, the lowest level being reached usually within thirty seconds In fat embolism, even when relatively large amounts (up to 50 c c) of olive oil are rapidly injected into the femoral vein, the fall in blood pressure is much more slow, frequently requiring several minutes to reach the minimum

2 If a nonfatal dose of peptone has been injected, recovery of the animal and the rise of blood pressure to its normal level are much more rapid than in the case of fat embolism, even when small amounts of olive oil are used

3 In fat embolism, the toxic effect of ether appears to be markedly intensified The continued administration of an amount of ether which, before the production of fat embolism, just suffices for thorough general anesthesia, causes, after the injection of olive oil, the respiration to become increasingly shallow and slow Unless the ether is greatly reduced in amount or withdrawn entirely for a few minutes, the animal quickly dies of respiratory failure while the heart action is still relatively strong This phenomenon has not been observed in peptone shock

4 In peptone poisoning, the greater part of the blood is accumulated in the liver and in the veins of

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[17] Barbour, H G Maurer L. L. and von Glahn W C. Jour Pharmacol. and Exper Therap , 1916, 8, 124

[18] Guggenheim M Therap Monatsh 1912, 26, 795

[19] Lieb C. C Am. Jour Obst. 1915 71, 209

[20] Heimann München. med. Wchnschr 1912 59, 1370

[21] Zimmermann R. Munchen. med Wchnschr 1913 60, 2675

[22] Jager, F Munchen. med Wchnschr 1913 60, 1714

[23] Krosz Zentralbl. f Gynak. 1913 37, 1507

[24] Kehrer E München. med Wchnschr 1912 59, 1831

[25] Sharp, J G Proc. Roy Soc. Med 1911 4, 114

* From the Department of Pathology of Northwestern University Medical School

the splanchnic area The right side of the heart is not distended with blood In fat embolism, on the other hand, the right auricle and ventricle are dilated There is a general venous stasis The accumulation of an excessive amount of blood in any one region or organ is apparently due largely to the effect of gravity Thus, if the foot of the board to which the animal is fastened is elevated, the intracranial sinuses are found at necropsy to be greatly distended with blood This can be demonstrated by attempting to remove the brain before opening the thorax and abdomen

This difference in the distribution of the blood in the body is to be expected In peptone shock, the low blood pressure is due to a loss of tonus in the vessels of the splanchnic region, the vascular area of the lungs being undiminished In fat embolism, the passage of the blood through the lungs is mechanically interfered with, the vascular tonus in the splanchnic region and elsewhere remaining normal

5 Edema of the lungs appears to be a fairly constant accompaniment of fat experimental embolism, but has not been encountered in any marked degree in peptone shock

6 In previous papers,[1] attention was called to the exaggerated reaction to nicotin frequently observed in dogs in peptone and anaphylactic shock This marked rise in blood pressure was obtained only when the nicotin caused a temporary dyspnea It was suggested in explanation of this phenomenon that the rise was due to the mechanical effect of respiratory suction on the reservoir of blood in the liver, and not to any direct action of the nicotin on the vasomotor apparatus itself It was also suggested that this mechanical effect of dyspnea might be of value in the treatment of any condition of low blood pressure in human patients in whom there was a large reservoir of blood in the liver Blood accumulated in this organ can be drawn into the right side of the heart by respiratory suction because the veins involved do not readily collapse The walls of those in the liver are better supported than those in the neck, for instance The distance between the right auricle and the point of entrance of the hepatic vein into the inferior vena cava is short The vena cava here is wide, and its walls are supported and prevented from collapsing by the central tendon of the diaphragm through which it passes and to which it is attached

Porter[2] has observed that in fat embolism, the induction of deep and rapid respiration brought about by increasing the carbon dioxid in inspired air leads to a rise in blood pressure of from 15 to 30 mm of mercury Although I have not used carbon dioxid, I have, in a number of experiments, observed such a rise in blood pressure when the rate and depth of respiration were increased from any cause

Hence in both peptone poisoning and experimental fat embolism, dyspnea causes a rise in blood pressure But there are certain important differences in the character of the rise in the two conditions 1 In peptone shock, the rise is sharp, and the pressure tends to drop almost to its former low level as soon as the respiration becomes normal, in fat embolism, the rise is gradual and more sustained 2 In fat embolism, the same rise in blood pressure is seen as a result of the rapid respiration, which can hardly be called dyspnea, that follows removal of the anesthetic and the partial recovery of the animal from its effects 3 A rise is also readily induced by vigorous artificial respiration by means of a bellows, an operation which actually produces a positive intrathoracic pressure Neither of these methods has produced a rise in pressure in any animal in a condition of peptone shock

In view of these marked differences in the character of the rise in blood pressure that follows the induction of dyspnea in peptone shock and experimental fat embolism, respectively, it may be suggested that the mechanism in the two cases is quite different The probable mechanism in peptone shock has been set forth in the papers referred to[1] There is evidence, which will be presented in detail later, that, in fat embolism, dyspnea and vigorous artificial respiration (with a bellows) act by aiding in the mechanical dislodgment of fat droplets from the capillaries of the lungs This increases the vascular area available for the passage of blood from the right to the left side of the heart and thence into the general circulation This may not always be an unmixed advantage, however, for it may lead to fat embolism of the brain, and death

SERUM THERAPY FOR TRICHINOSIS *

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In a recent paper, Salzer[1] records some observations and experiments with reference to trichinosis Among other things he reports successful results with serum therapy and states emphatically that the injection of immune serum has both a prophylactic and a curative value Briefly stated, Salzer's claims with respect to "immune serum" are as follows

1 Animals fed with infected meat later than twenty-four hours after the administration of serum from a convalescent animal prove to be immune

2 Infected meat mixed with immune serum does not produce trichinosis in animals to which it is fed

3 Immune serum injected into animals suffering with the disease produces a curative effect

The first two statements are fairly clear and easily subject to experimental verification The last statement is obscure One might suppose a curative action would involve destruction of the parasite The author, however, does not indicate that the parasite itself is destroyed, and rather gives the impression that the curative effect is to be judged by the disappearance of the principal symptoms of the disease, a criterion not yet shown to be applicable in cases of experimental trichinosis

In order to procure data on the effects of supposed immune serum on the resistance of animals to trichinosis, I performed the following experiment

Serum was obtained from a rabbit about four months after the disease had been experimentally produced A postmortem examination of the animal after the drawing of the blood revealed a moderate infection with encysted trichinae The blood drawn from the rabbit was placed in an ice-box, and on the following day two guinea-pigs were injected subcutaneously with 1 c.c and 2 c.c of the serum, respectively Forty-eight hours after the injection, the animals were forcibly fed small quantities of trichinous meat A salad consisting of lettuce and infected meat was also fed the following day Fifteen days after the first feeding one of the animals was killed and its diaphragm was compressed between two thick slides and examined microscopically Numerous larvae were found in the fluid surrounding the muscle showing conclusively that the serum had no effect on the normal migrations of the larvae The second guinea-pig was killed twenty-nine days after the first feeding and the muscles were found to be heavily infested

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[1] Simonds, J P A Study of Low Blood Pressure Not Associated with Trauma or Hemorrhage, Arch Int Med, December 1916, p 848 Anaphylactic Shock in Dog Jour Infect Dis 1916, **19**, 746

[2] Porter, W T Boston Med and Surg Jour, 1917, **176**, 699

* From the laboratory of the Zoological Division, Bureau of Animal Industry, United States Department of Agriculture

[1] Salzer, B F A Study of an Epidemic of Fourteen Cases of Trichinosis with Cures by Serum Therapy, The Journal A M A, Aug 19, 1916, pp 579, 580 Salzer also presented a report of his experiments at a meeting of the New York Academy of Medicine the minutes of which are published in the Medical Record, New York, 1917, **91**, 261

Another experiment bearing on the prophylactic effect of immune serum was performed as follows

Blood was drawn from a guinea pig two months after the first feeding with trichinous pork After the drawing of the blood the animal was examined and the musculature found to be heavily infested The day following the drawing of the blood 2 c.c. of the serum were injected subcutaneously into a sound guinea pig Two months later this guinea-pig was fed trichinous meat The animal died twenty one days after feeding and on examination the muscles showed a heavy infestation with the parasites

From the foregoing results it is evident that the administration of serum from a convalescent animal did not produce any prophylactic effects, but, on the contrary, animals after injection with serum readily became infested when fed trichinous meat, and the life cycle of the parasite did not deviate from its usual course

In order to determine whether “immune serum” has any effect on the development of the parasites when administered after the feeding of trichinous meat, the following experiment was performed

Two guinea pigs were fed trichinous meat and two days after feeding injected subcutaneously with 1 c.c. and 2 c.c. of serum, respectively, from the rabbit mentioned in the first experiment. The serum was injected three days after the drawing of the blood from which it was obtained It was kept in an ice-box until used One of the animals died twenty days after the feeding and its muscles were found to be heavily infested with trichinae The second animal was killed thirty-one days after feeding and yielded similar results

If Salzer's contention with regard to the prophylactic value of immune serum is to be sustained, it would seem that animals convalescent from the disease should not be liable to a fresh infection

I exposed rats suffering with trichinosis to a supplementary infection by feeding them a second time with trichinous meat about thirty-five to forty days after the first feeding In order to make absolutely certain that there would be no confusion between the parasites of the first and second infection the animals were killed within five days after the second feeding and the intestinal contents were examined In all cases it was found that the parasites of the second infection had increased in size, and in some cases had already copulated and that the uteri of the females were full of eggs The intestinal parasites from the first infection could readily be distinguished from the more active younger parasites by their sluggishness and by the presence of larvae in the uterus of the females

Salzer's contention that infected meat mixed with immune serum does not produce trichinosis in animals to which it is fed was tested a number of times, serum being used from animals at various stages of the disease The experiments are described below

Experiment 1—A guinea-pig was bled fourteen days after an experimental infection with trichinosis A postmortem examination revealed numerous parasites in the blood. The serum from the blood kept over night in an ice-box was thoroughly mixed with trichinous meat and lettuce in the form of a salad and fed to two guinea-pigs The animals were killed a month after feeding, and though one was negative, the other showed a very heavy infestation As the two animals were kept in one cage one of them probably failed to eat any of the salad and thus escaped the disease.

Experiment 2.—Twenty days after experimental infection, blood was drawn from a rabbit and mixed with trichinous pork Subsequent postmortem examination of the rabbit revealed a heavy infection The meat mixed with serum was fed to two rats one of which died nineteen days after feeding and was found to be heavily infested The second rat died fifty days after feeding and was likewise found to be very heavily infested

Experiment 3—Serum was obtained from a rabbit seven weeks after infection and after it was kept over night in an ice-box was mixed with trichinous meat Subsequent postmortem examination of the rabbit revealed a heavy infestation The meat mixed with serum was fed to four rats kept in one cage and only one of the rats became infected This one showed a very heavy infestation The negative result with the other rats as in the case of the guinea-pigs referred to in Experiment 1 was probably due to a failure to eat the meat

Experiment 4—Serum was obtained from a guinea-pig two months after experimental infection and after it had been kept over night in an ice-box was mixed with trichinous meat Subsequent postmortem examination of the guinea-pig revealed a heavy infestation The meat mixed with serum was fed to three rats all of which became infested

In the foregoing experiments it was found that serum from an animal during the active stage of the disease or during convalescence when mixed with trichinous meat which is fed to a suitable host, had no effect on the parasites and did not interfere with their developmental cycle This appears to be directly contrary to Salzer's assertion that trichinous meat mixed with immune serum fails to produce trichinosis

The direct effect of serum on the larvae was tested a number of times Trichinous meat was subjected to artificial digestion, and the parasites freed from their cysts were washed in a physiologic sodium chlorid solution, taken up in a capillary pipet and placed in pure serum and in mixtures of serum with various physiologic sodium chlorid solutions In no case did the serum have any ill effect on the larvae as far as could be ascertained by direct examination When kept at room temperature, the larvae in the serum succumbed more readily than larvae kept in a 0.7 per cent sodium chlorid solution, but this was undoubtedly due to the development of bacteria in the serum The results were similar with “immune” and normal serum When subjected to a higher temperature (37 C.) in an incubator, the larvae in the serum and salt solution mixture showed even greater resistance than the larvae in a salt solution without serum, and were still alive and active when the latter were dead This was doubtless due to the more favorable environment offered by the serum and salt solution mixture

SUMMARY

1. Serum from animals convalescent from trichinosis when injected into other animals did not produce immunity to trichinosis in the latter
2. Trichinous meat mixed with serum from animals during the active or convalescent stage of the disease proved to be still capable of producing the disease
3. Animals once infected and harboring trichinae in their muscles were not immune to further infection when fed trichinous meat
4. Serum from a trichinous animal had no observable ill effects on the larvae freed from their cysts by artificial digestion

5 None of the results of the experiments appear to be in harmony with the assertions made by Salzer (1916, 1917) concerning the value of serum from convalescent animals as a prophylactic or curative agent in trichinosis

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THE NECESSITY OF A PURE RAW MILK*

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Goethe once remarked that blood is a very peculiar juice We can say the same of milk Modern physiologic researches have shown that certain glands and secretions of the body have much larger functions than have hitherto been assigned to them We need only refer to the internal secretions of various glands, formerly unrecognized, that are now known to exert a marvelous influence not only on physical life, but on mental development as well

These facts have led us to give a closer scrutiny to the more familiar fluids of the body, of which milk is one of the best known, as it constitutes the universal food for the young of all mammalia From a nutritional standpoint it is recognized as a complete food, containing in itself all the elements required to support life

While each species of mammalian young is perfectly nourished by the milk of its own mother, the food elements are present in varying proportions in different species, this depending largely on the rapidity of growth of the offspring But milk is a complicated fluid, with more than one function to perform This must always be borne in mind when heat or other agents are brought to bear on it *As a general rule, the less milk is manipulated and the closer it is kept to its natural state, the better it will serve the ends for which it is intended* Any factor that tends to alter in any way the physical or vital character of milk must be considered as important, and possibly, under certain conditions and in certain ways, may not be of advantage Some of Nature's foods are evidently intended to be taken in a raw state, as is shown by a certain failure in nutrition which follows when they are subjected to prolonged drying or heating

There is one familiar but remarkable characteristic of all milks When collected from the mother they are always in fluid form, but as soon as taken into the stomach of the young, they become more or less solid This is due to a process of coagulation that takes place in only one of the ingredients—the casein—but which thus always alters the form of the ingested milk While the carbohydrates and fats in their composition and reaction to the digestive secretions are a good deal alike in different milks, the proteins are essentially different It is further to be noted that coagulation of the protein of milk takes place in different degrees in the different species

We are now led to two queries (1) What is Nature's object in presenting a fluid that always coagulates in the stomach receiving it, and (2) Why do the milks of different species coagulate in different ways? An answer will be found in studying the relation between the milk and the digestive tract that is destined to receive it While a certain portion of the protein of all milks coagulates on coming in contact with rennin or rennin and acid, the manner and extent of the coagulation will stand in a direct relation to the proper evolution of the digestive tract of the animal

Although there are many grades of coagulability in the milks of different animals, we may for practical purposes distinguish three of these grades and consider their significance The protein may coagulate in a solid, gelatinous or flocculent manner In the ruminant, herbivorous animals, such as the cow, sheep or goat, the protein coagulates in tough, solid masses that cannot readily escape from the stomach In these animals, digestion is always largely gastric and the stomach forms 70 per cent of the digestive tract Later on, this stomach will be called on largely to digest tough, stringy masses of hay and straw, and the previous exercise on the tough curds of milk develops it for this future work

In the nonruminant herbivora, such as the mare and the ass, the protein coagulates in gelatinous masses that can easily leave the stomach There is an object in thus passing the curds quickly along, as in this class of animals digestion is largely intestinal, and the intestine forms about 90 per cent of the digestive tract Later on, grasses and grains must be largely digested in the intestinal portion of the tube, and the curd is here also especially adapted to develop a certain part of the intestinal tract for its future work

In human milk the curd is thrown down in flocculent masses, a form intermediate between the solid and gelatinous types of curd previously noted While digestion begins in the stomach, it is largely carried on and completed in the intestine, and the stomach forms only about 20 per cent of the digestive tract The curd is thus adapted to start the development and motility of the stomach, and finishes by instituting these functions in the bowel, which is destined to play a prominent part in digestion Here again the curd, as far as *form* is concerned, furnishes, to a certain extent, an analogue and precursor of the future food of the infant The curd forms small, flocculent masses, and the food must be separated later into small particles by chewing before digestion can take place to the best advantage

It thus seems to be a law that the coagulation of the protein of milk always takes place in such a manner as most readily to adapt the digestive tract for its future work, as this function needs special preparation While a certain amount of protein is present in the milk of all animals and is necessary for tissue building and growth, this protein must not only be coagulable, but must curd in a certain specific way in each species of animal for the proper evolution of their digestive tracts

To realize what a divergence in the digestive functions has been taking place during the suckling period, imagine an infant, a kitten and a calf all being fed successfully on cow's milk Here it is evident that at the very beginning of life the difference in their digestive processes is not very great, but wait a year until all three have passed the suckling period The infant will be just beginning to eat soft food, the kitten will have developed so that it can eat flesh and bones, and the calf will be thriving on grass and hay In one short year the development and divergence of their digestive tracts has been so great that the natural food of the calf is then wholly unsuited to the kitten or the infant, yet the chemist will find that the food of all three at this time contains the same basic nutritive elements as it did at birth Milk is thus a food especially adapted for a digestive tract that is rapidly changing in form and function, and the differences in the digestive properties of the milks of various species are for real and specific purposes

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* Read before the American Association of Medical Milk Commissions, Brooklyn, June 1917

As nutrition is the basis of all physical life we see how important a function milk performs at the very beginning of existence in developing and preparing the digestive tract of each species so that it can digest and assimilate food that must nourish it in later life We must thus emphasize the fact that milk through one of its proteins has a *developmental* as well as a nutritive function to perform

In addition to the curding protein, an interesting fact in reference to the other protein of milk has recently been discovered that lactalbumin has the power of increasing the efficacy of other proteins when combined with them This forms another example of the power of one physiologic substance to activate another

Since the discovery of the importance of the amino-acids whose combination forms the various kinds of proteins, much study has been devoted to investigating the part each one plays in nutrition It has been found that the albumin of the milk contains substances which cause growth, and that as small a proportion as 25 per cent of milk albumin added to a protein that does not produce growth has the power of inducing normal growth while one-half casein is incapable of producing such normal growth It is important to appreciate the recent discovery that not all proteins are growth producers Thus lysin and tryptophan are amino-acids essential to growth, which will not take place in their absence Corn proteins will not in themselves produce growth The astonishing fact has been established that of two mixtures containing the same quantities of protein and the same number of calories, one may produce twice the amount of growth in the same time that the other mixture will produce, if from one fourth to one third of the mixture is milk albumin Soy bean protein and milk albumin are nearly alike in this growth-producing effect[1]

We must recognize the fact that "protein" is an indefinite term and that the same amount of protein and the same number of calories from different sources may have very different food values, and that the form or physical condition of the food may at times be as important as its composition and caloric value It has been found that young animals cannot thrive unless their food has a certain bulk, and the food on which the young not only fail to do well but which causes death quickly becomes suitable if wet blotting paper is fed with it In other types of animals, chopped straw added to the feed produces the same good effect

In the giving of cow's milk to infants as a substitute food, we must consider the physiologic effects of any changes that may be effected by heat or other agents Milk is a physiologic fluid, not merely a mixture of fats, proteins, carbohydrates, mineral matter and water, or a combination of protein matter and calories As more is learned of its properties, the greater will be the demand for raw milk in the treatment of various nutritional defects We must always remember that physical changes may interfere with some physiologic function Pasteurization of milk, or boiling it, not only destroys bacteria but also produces a different type of curd and changes the form of the lactalbumin These results may be beneficial, or at least not harmful in many cases, but physicians are called in to manage the minority that frequently require special adaptation of their food, and it is for just such cases that a supply of good raw milk may be of benefit The effect of heat on the curd will depend on the temperature, and time of subjection to various degrees of heat Prolonged heat may not only coagulate the albumin but also destroy the vitamins For this reason it is wise to add fruit juices to the diet when heated milk is given to the infant for a long time Many babies who do not thrive, or cease to thrive, on heated milk do well on a change to raw milk

The desirability of pasteurizing milk that is handled carelessly or in large bulk is not here called in question It is a safeguard that should be generally applied While the mass of population is entitled to a supply of milk for ordinary household purposes that is free from contamination and from pathogenic bacteria, and while heating or pasteurizing milk will destroy these bacteria, it is going much too far to insist that all milk shall be thus treated and that no raw milk shall be available for use because it may be dangerous under some circumstances Granting that raw milk may become dangerous, it does not necessarily follow that it may not be employed with advantage, or that its use may not be properly controlled

It is true that the best raw milk can be quickly contaminated by careless handling in the home The same is true, only in greater degree, of pasteurized milk A false sense of security may lead to absence of all precautions and very harmful changes may take place in such milk without any very objectionable manifestations, such as souring, to give warning of the change In not a few cases there is no proper oversight of pasteurization, which may be very imperfectly performed and the protection may thus exist largely in name only The medical profession and the milk producers and dealers should combine in a campaign of education of the public as to the proper handling of milk in the home This would in itself solve a good part of the milk problem The housewives should be impressed with the necessity of keeping milk of all grades both cool and clean The importance of this subject should be emphasized by this association, as the full benefits of certified milk will not be obtained unless extra care is employed all along the line

Many of the data regarding the necessity of pasteurizing all the milk supply have been derived from European sources Ice has always been scarce in Europe, and hence the icing of milk is not the usual practice Milk is thus unfit to give unless heated, as this is the only practical way of keeping it Milk that is clean and cool from the start and kept in this condition until it reaches the consumer is a different proposition There is a large and widening field for milk produced and handled in this way It occupies a field of its own that cannot be displaced by any other kind of milk

The constantly broadening knowledge of nutrition that is resulting from chemical studies and from animal feeding experiments should be a warning against passing laws that will prevent progress, and no regulations should be tolerated that will put normal, physiologic milk beyond the reach of physicians and the public at large Certified milk, produced with scrupulous care, under the oversight of a reliable medical commission, and then properly handled in the home, is the ideal solution of the milk problem, at least as far as the delicate infant or invalid is concerned

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[1] Osborne, T B, and Mendel L B Jour Biol Chem 1917 **29**, 69

A CASE OF SYRINGOMYELIA

WITH REPORT OF OPERATION *

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NEW YORK

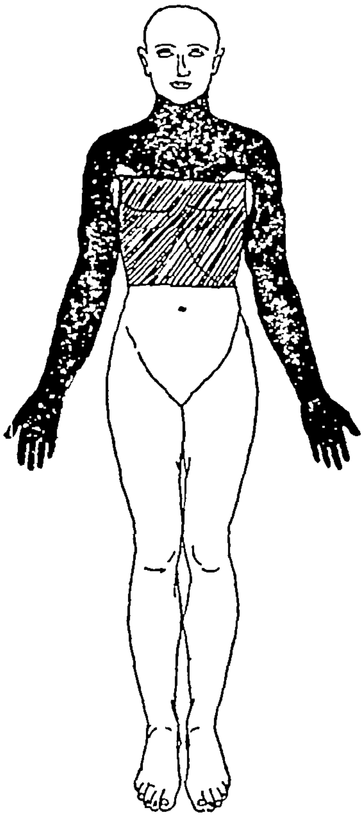

Fig 1 —Anterior aspect before operation dark shading, loss of pain and temperature sense, light shading, hypalgesia and therm hypesthesia

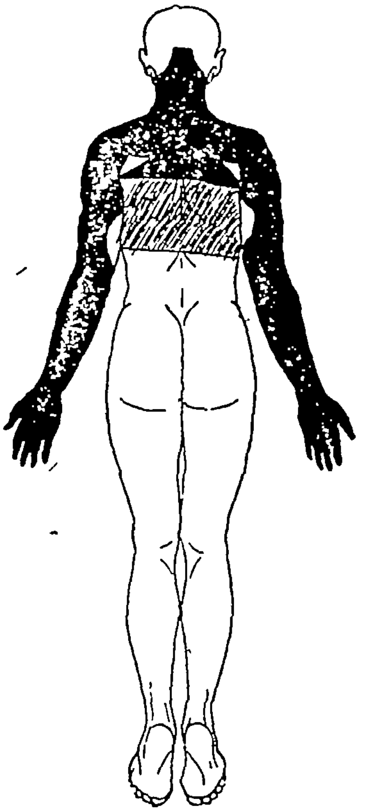

Fig 2 —Posterior aspect before operation dark shading, loss of pain and temperature sense, light shading, hypalgesia and therm hypesthesia

History—J P M, man, aged 35, American, a clerk by occupation, whose mother died of carcinoma, denied venery and alcoholism, and does not remember of having been ill In 1905 he was thrown heavily to the ground in a football game, being rendered unconscious for sixteen hours and sustaining a fracture of the right femur There was no escape of arachnoid fluid from the ears, nose or mouth After having been eight weeks in bed and attempting to get about, he noticed that he could not walk on account of a paretic condition in his legs At that time there was no subjective sensory disturbance in the lower extremities Soon, however, a numbness and tingling sensation made their appearance in the upper extremities and back of the left ear There was no perceptible impairment of the motor power in the upper extremities The paresis in the legs improved within a few days, and the sensory disturbances in the arms disappeared within two months, while that behind the left ear remained, and still persists In this fair condition of health he remained until 1910, when paresthesias in the arms appeared, culminating soon in complete loss of sensation, gradual loss of power, with wasting, especially in the muscles of the forearms During 1911 he had a series of six epileptiform seizures within two days, with complete loss of consciousness and biting of tongue No aura preceded the attacks So far as the patient is able to learn, the attacks were generalized throughout the whole body The convulsions lasted from ten to fifteen minutes After a week's interval he again had an attack and one week later another one, similar to the original ones Immediately after these attacks he became hypersensitive to touch and pain between the shoulders The numbness, wasting and loss of power in his arms gradually grew worse till 1914, when he became completely paralyzed in both upper extremities Early in 1915, a motor weakness manifested itself in his legs, his gait became somewhat spastic and staggering, especially pronounced when under mental stress as a result of fright He would then experience great difficulty in walking Yet there was no subjective sensory disturbance

Examination—Feb 7, 1916, he was admitted to Bellevue Hospital to the service of Dr George D Stewart. Examination revealed a complete flaccid paralysis of the upper extremities with considerable wasting of the muscles of the forearms, there were some spasticity and motor weakness in the lower extremities None of the cranial nerves were involved

The reflexes of the upper extremities were abolished, those of the abdomen and lower extremities were markedly exaggerated, and there was a double ankle clonus and Babinski's reflex

Sensation was tested, April 24, 1916, and is outlined in Figures 1 and 2 There was complete loss of touch, pain and temperature sense in both upper extremities and chest and neck up to the fifth ribs, corresponding to the lower six cervical and first, third and fourth dorsal segments of the cord There was also a zone of hypalgesia and hypesthesia on both aspects of the chest between the fifth and eight ribs, corresponding to the fifth, sixth, seventh and eighth dorsal segments In addition, there was a line of marked hyperesthesia of about 2 inches in width along the vertebral columns between the sixth cervical and eighth dorsal vertebrae

The Wassermann test of the blood serum gave five units, February 12, and negative, March 23, 1916, that of the spinal fluid was negative, March 28, 1916 The cell count of the spinal fluid was seven cells per cubic millimeter, all mononuclears, globulin, faintly positive

In view of these findings, a tentative diagnosis of a cord tumor was made, probably a glioma, and operation was decided on

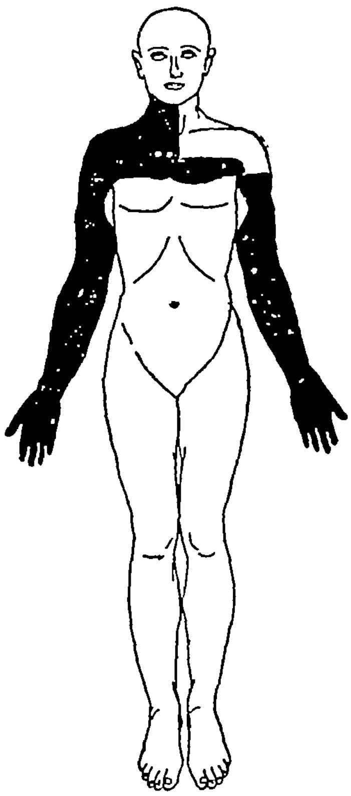

Fig 3 —Anterior aspect after operation dark shading, loss of pain and temperature sense

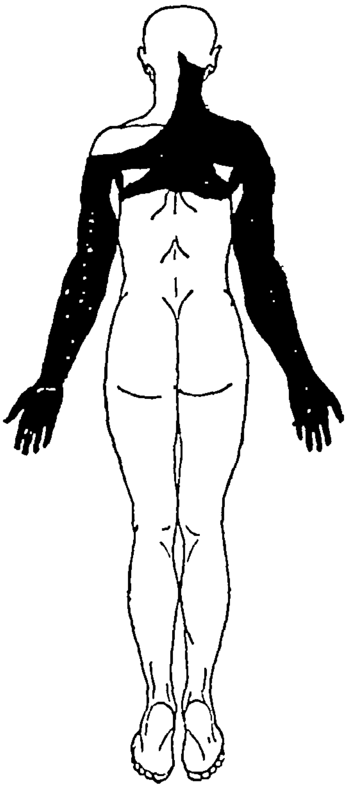

Fig 4 —Posterior aspect after operation dark shading, loss of pain and temperature sense.

Operation and Result—The patient was operated on by Dr Stewart, May 4, 1916 The central canal was found enlarged and a probe could be passed upward and downward The flaccid paralysis of the upper extremities still persists, but the patient is able to flex the fingers somewhat. The wasting is quite marked in the entire extremities Otherwise the patient is physically improved The eyegrounds are normal

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* Read before the Section on Nervous and Mental Diseases at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

The reflexes of the upper extremities are completely abolished. The abdominal reflexes and those of the lower extremities are exaggerated. There is a double ankle clonus and Babinski's reflex. The pupils are small, equal and regular; the response to light is sluggish, especially in the right pupil; accommodation is good in both.

Sensation of the anterior and posterior aspects on the right side is as shown in Figures 3 and 4. There is complete loss of touch, pain sense in the arm and the chest corresponding to the lower six cervical and first, third and fourth dorsal segments of the cord. On the left side there are complete anesthesia and analgesia in the arm and part of the chest corresponding to the lower four cervical and first, third and fourth dorsal segments. There is also a hypesthesia on the face corresponding to part of the right second cervical segment. The thermanesthesia is complete on both aspects of the neck and chest as far down as the sixth ribs.

The left pronator radii responds to a strong faradic current. All other muscles of both upper extremities do not respond to faradic current, and show a complete reaction of degeneration.

46 East Fifty-Second Street.

ABSTRACT OF DISCUSSION

Dr. I. Abrahamson, New York: We had a similar case at the Montefiore Home. The provisional diagnosis was a central tumor of the cord. An unusual feature of our case was the existence at the level of the lesion of an action myotonia, that is, a spinal type of myotonia. At the operation a myelomalacia was found. The cord was incised and improvement followed. The occurrence at the level of the lesion in Dr. Fisher's case of involvement of tactile and pain and temperature sensibility indicated that the lesion was at or very close to the posterior roots. Below this level the pain and temperature sensibilities alone were involved.

Dr. E. D. Fisher, New York: A possible origin of this disease was hemorrhage into the cord at the time of injury, and at the site of the hemorrhage we found the beginning of the glioma later. I think without question the nerves were affected.

INTERESTING REACTIONS INCIDENTAL TO THE TREATMENT OF TWO CASES OF BRONCHIAL ASTHMA*

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It is now well known that naturally sensitive individuals give a skin test to the proteins to which they are sensitive and thus presumably have many antibodies fixed in the cells of their skin. In connection with other work done in New York in 1915-1916, Dr. Longcope and I attempted to demonstrate circulating antibodies either as precipitins or as so-called anaphylactins in the blood serum of these naturally sensitive individuals, but always with a negative result. Cooke[1] could find no circulating antibodies in the blood of hay-fever patients. Schloss[2] and also Koessler[3] succeeded in finding circulating antibodies in a case of egg susceptibility and hay-fever, respectively, and recently Walker[4] has reported the irregular appearance of complement fixing antibodies and precipitins in patients naturally sensitive to horse hair and cat hair proteins.

In view of the fact that, in the case of artificial sensitization, circulating antibodies appear immediately after the subsidence of the anaphylactic symptoms, as Dr. Longcope and I were able to show, it has seemed worth while to study and report two interesting cases of natural sensitiveness in patients who, during treatment for their asthma, showed anaphylactic symptoms after injection of the offending protein, since circulating antibodies should be expected at this time if ever.

One patient was a woman of 33, who had had asthma for fifteen years. The other was a man of 39, with asthma for thirty years. In both patients the asthma came on in attacks which were often associated with contact with horses or other animals. Both patients gave markedly positive skin tests to an extract of horsehair as well as to extracts of other animal proteins. In both patients there seemed to be no other cause of asthma and they were, except for asthma, apparently normal persons. In view of the fact that their troubles were presumably due to a great excess of antibody in the cells, which fixed the offending protein to the cells and there split it to its poisonous elements,[6] it seemed justifiable to attempt to reduce the number of fixed antibodies by small repeated doses of the antigen — in these cases horsehair.

This antigen was a Ringer solution extract of crude horsehair, which had been previously treated with an alcohol and ether mixture to dissolve the fat and dirt. The extract was sterilized by passage through a Berkefeld filter and was standardized by determining the total nitrogen content by the ordinary Kjeldahl method.

The woman received subcutaneously, on successive days (in terms of nitrogen content), 0.01, 0.01 and 0.02 mg. On the fourth day the dose (0.03 mg.) was introduced into the outside of the left thigh a little above the knee. Immediately following the injection a little blood appeared in the syringe so that presumably the dose had been injected into a vein, although no vein showed under the skin at that point.

Within two minutes she complained of being full and hot; within three minutes she had a definite coryza with red running eyes and flushed face, and complained of a burning, prickling sensation, especially over the head and upper trunk.

Within five minutes definite asthma began, associated with a choking sensation in the throat and an anxious, worried expression. Twelve minims of a 1:1,000 solution of epinephrin (adrenalin chlorid, Parke, Davis & Co.) was injected subcutaneously at this time, and in ten minutes afterward the asthma was much relieved.

In thirty minutes after the dose of extract the severe asthma was practically over, though there was still a little wheeze. The redness, heat and burning of the arms had become a general urticaria which spread over the arms, chest and back. In one hour the asthma had gone, the urticaria was clearing, and in an hour and a half the patient was practically normal again.

The man was given eight desensitizing doses of horsehair extract at intervals of three or four days, the doses gradually increasing from 0.006 to 0.65 mg. During this time his asthma was perhaps a little better, but he still had some wheezing After the last dose he had a bad asthmatic attack which came on in five hours and lasted about twenty-four hours His arm was swollen and red for two days

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* From the Medical Clinic of the Massachusetts General Hospital.

[1] Cooke, R. A.: Jour. Immunol., 1917, **2**, 217.

[2] Schloss, O. M.: A Case of Allergy to Common Foods, Am. Jour. Dis. Child., June, 1912, p. 341.

[3] Koessler, G. L.: The Specific Treatment of Hay Fever (Pollen Disease), in Forchheimer: Therapeusis of Internal Diseases **5**, 671.

[4] Walker, I. C.: Jour. Med. Research, 1917, **31**, 243.

[5] Longcope and Rackemann: Proc. Soc. Exper. Biol. and Med., 1916, **13**, 101.

[6] Weil, Richard: Jour. Med. Research, 1915, **32**, 107. Vaughan: Protein Split Products, Lea and Febiger, 1913, p. 324.

At this point a stronger dilution of a different extract, although made up in the same way as the first extract, was used He was given, however, in terms of nitrogen content, less than half the preceding dose — only 0 3 mg being used

One and a half hours after this last dose he had a large swelling on his arm and severe asthma In three and a half hours he reported and his arm presented a large yellowish, raised, hard wheal surrounded by an areola, the whole area being approximately 12 cm in diameter

In ten hours the patient was found at home with the whole arm from shoulder to elbow red, swollen, brawny and itching intensely, and he was definitely wheezy

In fourteen hours the swelling on the arm had increased and he had severe asthma, which was quite promptly relieved by epinephrin subcutaneously He required another dose in three hours

In twenty hours his asthma was somewhat better, but at this time he presented a marked generalized urticaria with typical lesions scattered over the arms, face, legs and back, with a few on the abdomen

In thirty-three hours the patient had rather more urticaria with intense itching, the lymph nodes were not enlarged, and he had no joint pains There was some asthma Epinephrin again relieved the asthma and the itching

On the third day he had transient, though severe attacks of urticaria and asthma lasting an hour or so

On the fourth day the urticaria was gone and the patient felt much better, but he showed definite puffiness of his eyes and swelling of his lips, although no frank edema of the ankles or the sacrum could be made out and he had no albuminuria

On the fifth day he had some asthma in the night, but no further urticaria He was up on the sixth day for a short time and felt much better Puffiness of the eyes was still present on the seventh

By the eleventh day he was quite normal again and declared that he was almost free of asthma

He had, therefore, passed through a fairly typical attack of serum disease

From my previous study of serum disease[5] the appearance of antibodies would have been expected in both these patients immediately after the subsidence of their symptoms

Twenty-four hours after the definite acute anaphylactic shock the woman was bled and series of tubes were set up containing 0 5 c c of her fresh, undiluted serum and 0 5 c c of various dilutions of the same extract of horsehair which had caused the shock Other tubes contained 0 5 c c of serum and 0 5 c c of various dilutions of cathair extract and cat serum After two and a half hours' incubation at 37 C no precipitates were visible in any of the tubes, nor were any seen the next morning

With exactly this same technic, the blood serum of the man was tested against the same antigens The test was done twenty-five days before the "serum disease" on the first day of freedom from asthma and urticaria after the "serum disease," and again on the third day after the "serum disease" when he had had no asthma or urticaria for at least forty-eight hours The tests were all negative, those set up after the attack showing no more precipitation than the tubes set up before any treatment had been instituted

It is regrettable that no attempt to transfer these suspected antibodies to guinea-pigs to demonstrate passive anaphylaxis was made, and it is also regrettable that no other opportunity occurred to test for circulating antibodies on later dates

Skin tests were repeated in both patients after the attack, and were found to be slightly diminished in intensity, but were still positive and have since remained so

Following the acute shock the woman went home on the third day, but had an attack of asthma on the train Since then, however, she has been distinctly better, she is still being cautiously treated with horsehair and cathair extracts She has had no severe attacks, although she has been wheezy at times

After his serum disease, the man remained comparatively free from asthma for the next seventeen days, when he had two bad nights, which he attributed to exposure to dogs But during the following five months his asthma has distinctly improved, he was treated with horsehair extract during the first of these months

CONCLUSIONS

That the asthma in these two individuals at least could be caused by horsehair protein was obviously shown The striking and rather alarming reactions are not without significance The acute shock illustrates well the danger which always exists in the treatment of these cases regardless of the size of dose or care of administration The typical serum disease, with all its clinical manifestations, illustrates another danger and, furthermore, suggests a possible accumulation of the antigenic substance in the cells with explosive manifestations when this accumulation has reached a certain point

That the woman had an attack of asthma on her way home, three days after the shock, is interesting and important It shows either a multiplicity of causes of her asthma, or else it shows that the well known principles of antianaphylaxis do not obtain in these cases

The immune reactions are interesting Real conclusions cannot be drawn from such meager observations They do, however, suggest again a difference between natural and artificial sensitization in the mechanism concerned in the production of symptoms in each

263 Beacon Street.

State Makes New Low Mortality Record—Returns to the New York state department of health show that despite an increase in the population in the last quarter of a century of over 67 per cent, there were fewer deaths in July, 1917, than in July, 1892 Had the rate of mortality of twenty-five years ago prevailed during the months of July, 1917, there would have been recorded in the state 12,000 more deaths than actually were recorded The reduction in the number of infant deaths is particularly notable From a total of 2,237 infant deaths from diarrheal diseases, in 1910, the number of such deaths declined to 1,133, in 1913, and in July, 1917, to 439 deaths, one fifth the number of deaths from this cause only seven years ago The infant mortality rate for July was only 70 per thousand births in contrast to the July rate of 186 per thousand births in 1910 In contrast to this reduction in infant mortality is an alarming increase in the number of deaths from accidental causes, chiefly automobile accidents Thus far this year there have been reported 5,103 such fatal injuries in the state, or 700 more than the average of the last five year period, 4,401

SURGERY OF BONES AND JOINTS

WITH SPECIAL REFERENCE TO THE OPEN OPERATIVE TREATMENT OF FRACTURES AND A METHOD OF ARTHROPLASTY IN ANKYLOSIS OF THE ELBOW JOINT*

HUGH McKENNA, M.D.
President of Staff of St. Joseph's Hospital
CHICAGO

ETIOLOGY AND PATHOLOGY

The bacteriologic laboratory has shown that pathogenic organisms require special culture mediums for their growth. This is especially true of the gonococcus, which requires blood-agar for its best development artificially. Just as this organism requires special mediums for its cultivation in the laboratory, so also it shows certain points of election for tissues in the human host, particularly the subsynovial structures of the joints. The endothelium covering the membrane of the joint surface is rapidly destroyed, probably by pressure necrosis, and with the destruction of this tissue, first a fibrous and later a bony ankylosis results. Concomitant with the destruction of the intra-articular tissue comes probably a stimulation and increase in antibodies to the periarticular structures which would seem to cause the death of the infective organism. I believe the gonococcus does not remain dormant in periarticular structures for any great length of time, and by this I mean any number of months. Consequently, surgical intervention in the form of arthroplasty may be resorted to much earlier than in those cases of ankylosis caused by such pathogenic bacteria as the staphylococcus and streptococcus, or chronic infections, as tuberculosis, which processes must not be disturbed until a much later period.

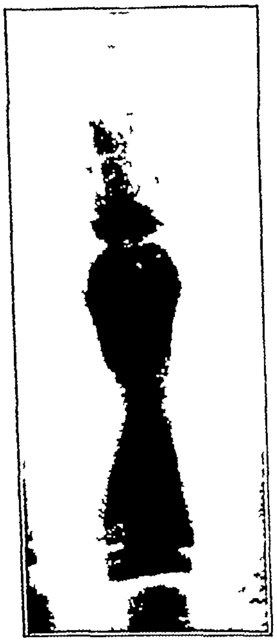

Fig. 1.—Anteroposterior view of phalanx destroyed by tuberculosis.

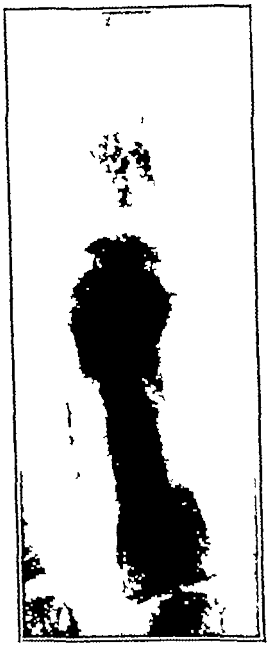

Fig. 2.—Anteroposterior view of the same phalanx immediately after the autogenous transplant has been put in place.

Surgeons of experience in joint surgery have come to realize how difficult to manage and how distressing are pathologic conditions of long standing in joints. The contractures in the capsule, ligaments and tendons require long periods of time before they are restored to even an approximately normal condition. Therefore, surgeons should realize how imperative it is, first, to determine whether or not the ankylosis has been caused by the gonococcus, so that an arthroplasty may be done early before the distressing contractures take place, and, secondly, to introduce, in the management of the early cases of ankylosis caused by organisms other than the gonococcus, such treatment as will lead to a rapid and early encapsulation and death of the etiologic organism. I believe that careful observation along this line will enable us to perform arthroplasties much earlier than formerly, thereby saving much unnecessary suffering to the patient, shortening the period of invalidism very materially, and producing a more perfect anatomic and functional result.

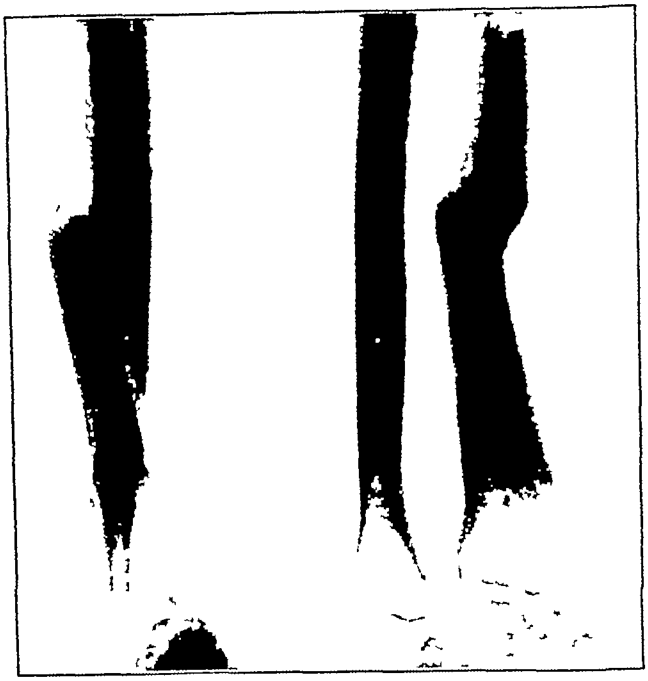

Fig. 3.—A case of fracture badly treated, four months after injury.

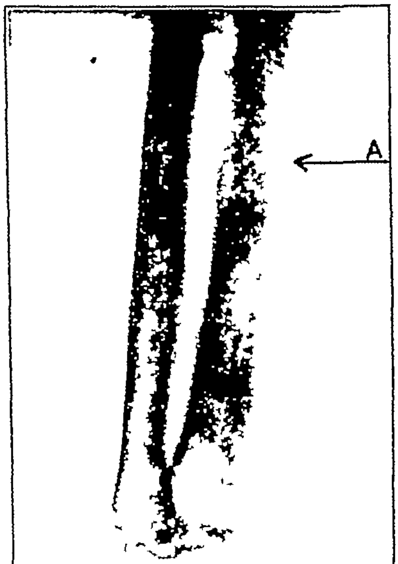

Fig. 4.—Same case with deformity corrected by means of an autogenous intramedullary splint shown at *A*.

The foregoing statements respecting the performance of early arthroplasties are not to be construed as excusing any physician for responsibility in not instituting proper treatment in acute infections of joints if observed at the onset of the disease, since careful management at this stage of arthritis would probably have prevented the ankylosis

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* Read before the Section on Surgery, General and Abdominal at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

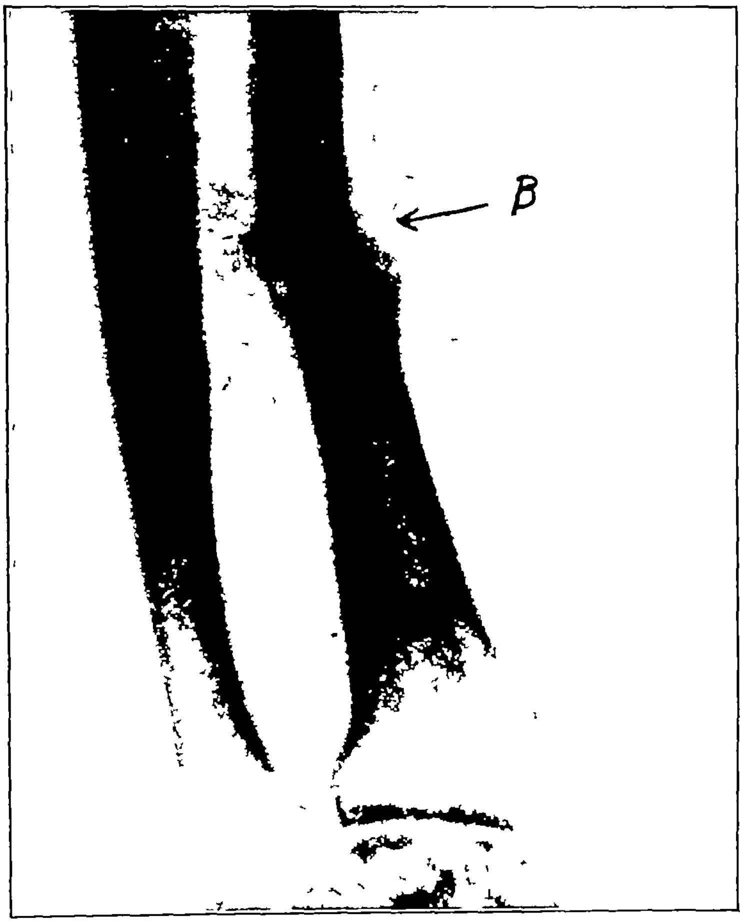

Fig 5 —Anteroposterior view of the same deformity corrected *B*, point of regeneration

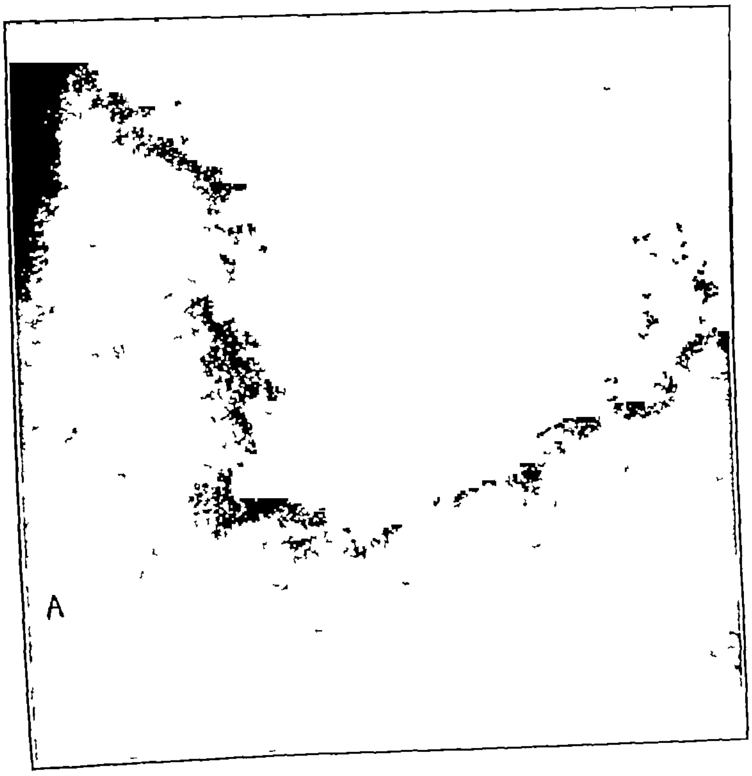

Fig 6 —Intracapsular fracture of the neck of the femur reconstructed by means of a heavy autogenous bone splint

DIAGNOSIS

The modern bacteriologic and Roentgen-ray laboratories are accessible to every physician Certainly the question of a carefully interpreted history is within the range of every medical man In summing up the diagnosis, we find that the history holds a very prominent place in the records of every case of joint disease In this connection, I wish that every physician might read the paragraphs on incubation and diagnosis in a paper by Kreuscher[1]

The subject of diagnosis of fractures may be dismissed with little comment, since practically every injury of any moment is subjected to Roentgen-ray examination Two or more views at different angles should be taken, stereoscopic plates may be made in special fractures, or in certain pathologic conditions of bones or joints

TREATMENT

Fractures —1 Closed method I have mentioned this method only to dispose of it by saying that the majority of simple fractures should be handled by this form of treatment This is especially true when the surgeon has not had experience, or has not the equipment for carrying out surgical asepsis to the highest degree

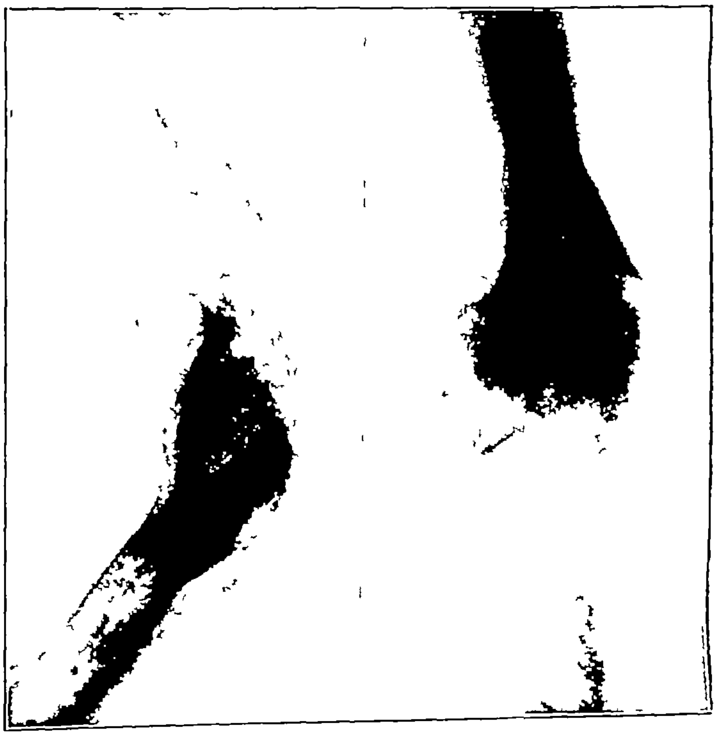

Fig 7 —Complete bony ankylosis of the elbow joint.

2 Open method I will not burden my readers with the details of the technic used in bone and joint surgery, as I have outlined the procedure thoroughly in previous papers I wish only to state that the most careful asepsis is carried out, instruments and sponges being introduced directly from the sterilizer into the wound

The indications for the open method are based on the treatment of ununited fractures (Figs 3, 4 and 5), recent fractures with the intervention of muscle or fascia, certain spiral or oblique fractures whose fragments, owing to muscular strain, cannot be maintained in proper alinement, and intracapsular fractures of the neck of the femur (Fig 6) I have operated in three of the latter In all these fractures, I found the head turned and the torn capsule protruding down between the fragments I am firmly convinced that this type of fracture should be treated by the use of an autogenous bone graft, which acts, first, as a splint in fixing the head to the neck, and, secondly, as a bridge for the laying down of osteoblastic cells between the neck and the head. My experience has taught me that bony union rarely ever takes place in a true intracapsular fracture unless an impaction is produced either artificially, after the plan of Cotton, or by the method just outlined.

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[1] Kreuscher, P H A Clinical and Experimental Study of the Metastatic Arthritides, Med Rec, New York, 1916, 40, 834

Joints—In the treatment of ankylosis of the elbow joint by arthroplasty, I have followed a modified plan of the pedicle flap operation outlined by Murphy (Figs 7 and 8). The modification I have worked out consists in making a much longer internal pedicle flap than that described by him. The long flap extends through the joint, coming well out over the external condyle of the humerus, thereby permitting the external flap to be used in taking care of the head of the radius alone (Figs 9 and 10). This procedure I believe is an important point in the technic of the elbow arthroplasty.

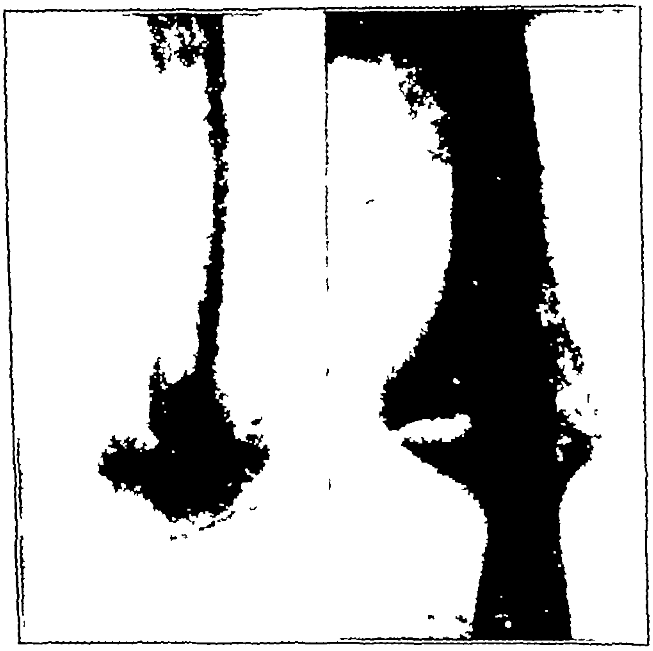

Fig 8.—The condition shown in Figure 7 after operation by the flap method.

Treatment of Certain Bone Defects Caused by Disease or Congenital Absence of Bones—I have recently operated in a number of cases of tuberculosis of bones in which it was impossible to remove the diseased bone and splint the remaining soft tissues to prevent contracture (Figs 1, 2, 9, 10 and 11). Consequently, I decided to transplant a graft immediately, knowing, of course, that this was against the generally accepted principles of bone grafting. I felt, however, that it would serve as a splint during the healing process of the soft tissues, and that there was some possibility that it might heal in. I am rather enthusiastic about the outcome of these cases, as I believe they go to show that autogenous bone grafts are more tolerant to chronic infection than we have generally supposed. I am especially enthusiastic about the transplantation of bone into those areas made absent by bone disease, instituting, immediately after operation, treatment with neutral solution of chlorinated soda, which I am certain hurries the healing process very materially. I do not wish to go on record, on the basis of the results obtained in these few cases alone, as an advocate of transplanting bone into infected areas generally. I wish, however, to state that I have performed this operation a number of times on the small bones of the fingers, in which conditions, if the graft were lost, it would be of small consequence, and it might act as a splint to prevent contracture of the fingers. Murphy frequently said that one single case explains a principle. That being true, the accompanying illustrations show that the autogenous bone graft has healed in perfectly in a relatively short time. To me, these cases are very interesting, first, because the sinuses in the soft tissue have entirely closed, and secondly, because the graft not only has served as an osteoblastic bridge, but has united to what remained of the bony segments after the disease was removed, to form a permanent shaft of bone. One of these patients was operated on seven months ago, and the pictures show that the graft is still strong and healthy, and does not present any appearance of being absorbed, but has rather taken the place of the permanent shaft of the bone.

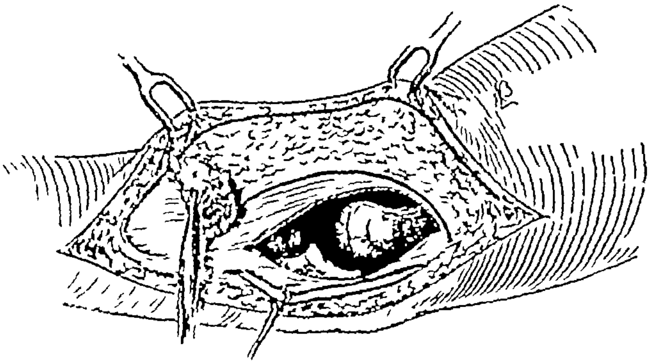

Fig 9.—Long flap of fat and fascia loosened, ulnar nerve being retracted out of operative field.

CONCLUSIONS

1 The surgeon should establish definite surgical indications before undertaking the treatment of fractures by the open method.

2 Better results are obtained from early arthroplasty in ankylosis caused by gonorrheal infection. The long pedicle flap is best suited for this procedure.

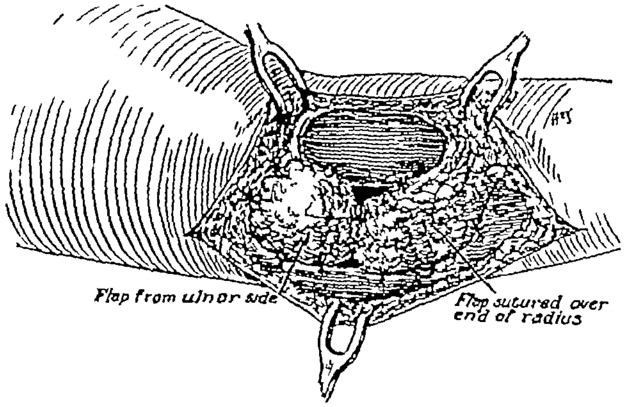

Fig 10.—Flap from ulnar side brought through and sutured over end of humerus; short flap loosened and sutured over end of radius.

3 The autogenous bone graft, or in certain cases the heterogenous bone graft, is the choice of procedure when it can be used in fractures. The autogenous transplant is used to good advantage in bridging defects in the congenital absence of bone, or in bone destroyed by disease.

104 South Michigan Avenue

ABSTRACT OF DISCUSSION

Dr Philip H Kreuscher, Chicago Dr McKenna has been able to implant in the infectious area of the hand a transplant of a boy who had tuberculosis of the phalanx If that can be done, then we will be able to transplant much earlier than we thought in the tuberculous cases In over 900 cases in Dr Murphy's clinic and mine we found streptococcic metastasis occurred in twenty-four to seventy-two hours, gonococcic metastasis in eighteen to twenty-two days, staphylococcic, in ten to fourteen days, staphylococcic and colon bacilli, in eight to ten days, colon bacilli and typhoid, in four to six weeks I have seen infection in twenty-four hours following sinus operation I have a young man under observation who was infected April 20, and May 10 showed acute gonococcic metastasis in the elbow and knee joints There were streptococci present in 31 per cent of the cases I have under my care now a case of metastasis, occurring on the third day of smallpox, showing that we may have a metastasis from furuncles The sinuses caused the arthritis in over 60 per cent of cases in our arthritis series of over 900 cases

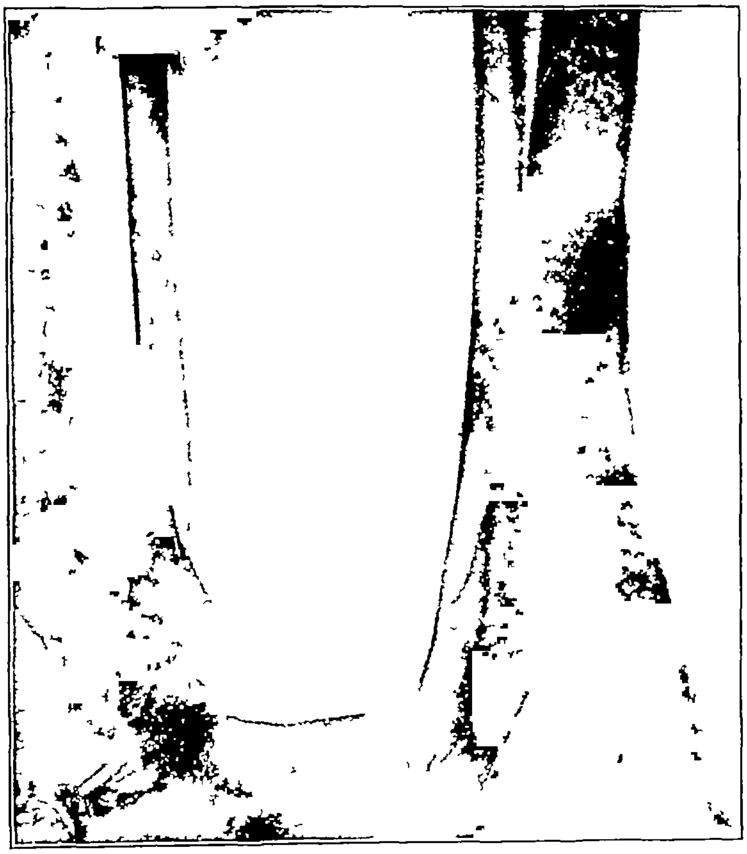

Fig 11 —Tuberculosis of the lower end of the tibia in which sinus formation was present for ten years

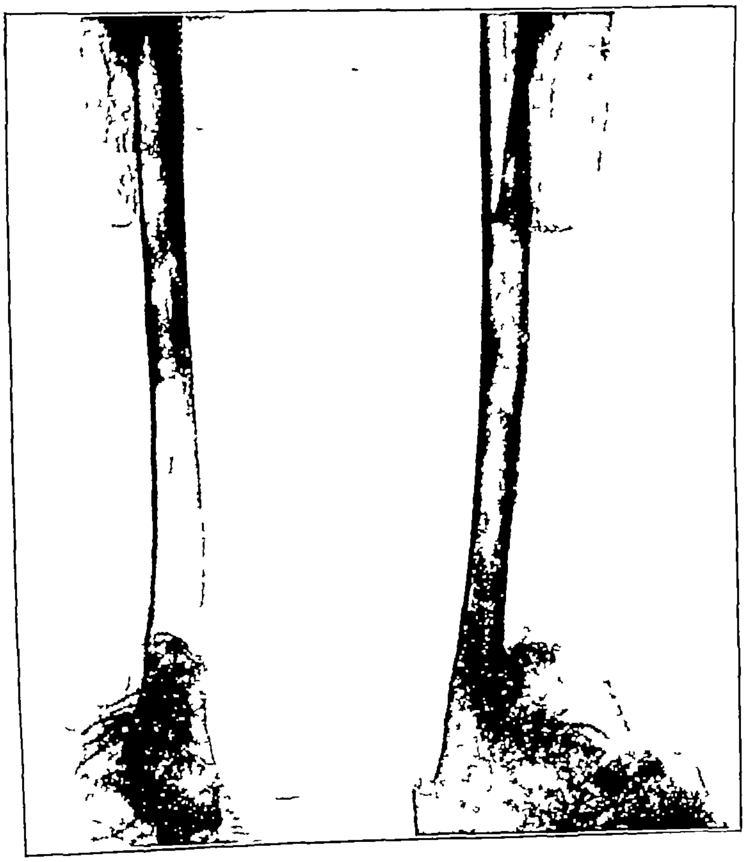

Fig 12 —The same case shown in Figure 9, in which 6½ inches of the tibia have been completely removed

Dr R H Conway Gibbons, New York Fifty years or more ago Professor Stille of the University of Pennsylvania taught that all of these troubles were due to blood poisoning Joint troubles were pointed out as coming from various diseases—of the tonsils, teeth, etc A young woman in New York, subject to tonsillitis, took employment with a laryngologist who had at the time six or eight severe cases of infection of the throat which she helped take care of She became ill and was taken to the Presbyterian Hospital She came out with a stiffened joint The late Dr John B Murphy saw her and advised her to have an operation He said he could give her right-angle motion, which he did But the operation was not a success, as there was uncontrollable lateral motion Finally, she was examined by Dr Henry Ling Taylor of this city He put a brace on her leg but she is not well and never will be free from various forms of lateral motion When the crucial ligaments are gone, all is gone for usefulness of the knee joint. It is different with the elbow

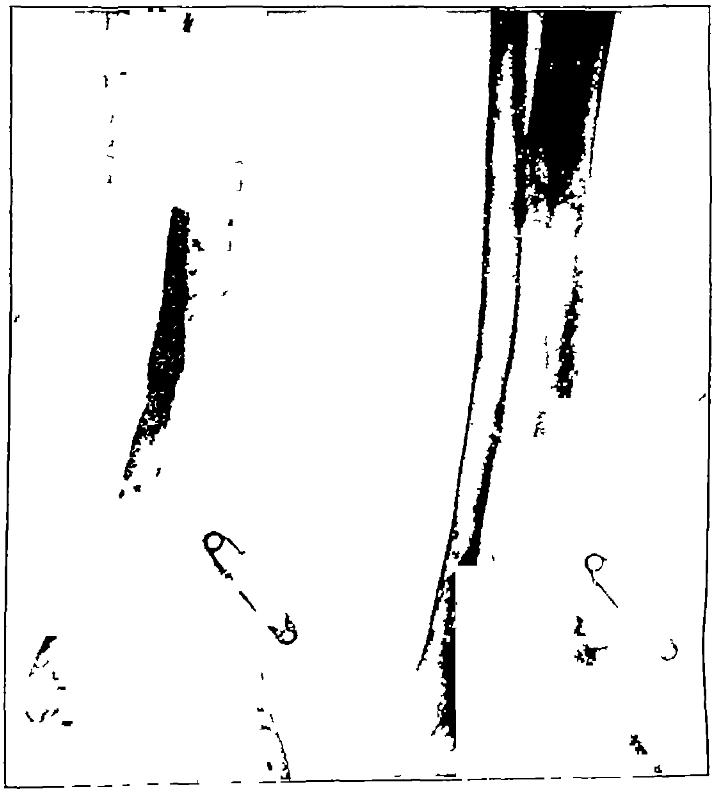

Fig 13 —The same case as described in Figure 9, in which a heavy autogenous transplant from opposite tibia 9 inches in length completely healed in place

Dr Hugh McKenna, Chicago I have seen a number of knee arthrodeses performed by Dr Murphy, and my conclusions are a little different from those of Dr Gibbons My patient would have been invalided for the remainder of her life She had all her anatomic points remaining, and can do practically anything with this arm that she can do with the other

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A Foundation of Health —Good health is the foundation of personal usefulness either in peace or war —Connecticut *Health Bulletin*

THE DIAGNOSIS AND TREATMENT OF SINUSITIS IN INFANTS*

ROSS HALL SKILLERN, M.D.
PHILADELPHIA

A DEFINITION OF SINUSITIS

The title of this paper is distinctly a misnomer. As a matter of fact, I do not believe that such a thing as sinusitis per se in infants exists. To bear out this assertion, we must revert to the actual anatomic conditions that are present in the first years of life. Let us arbitrarily classify infants and children according to the stage of development of the sinuses and not according to the actual age, although for the purpose of standardization we will take the age of 5 years as the dividing line between infancy and childhood, at least as far as the sinuses are concerned.[1]

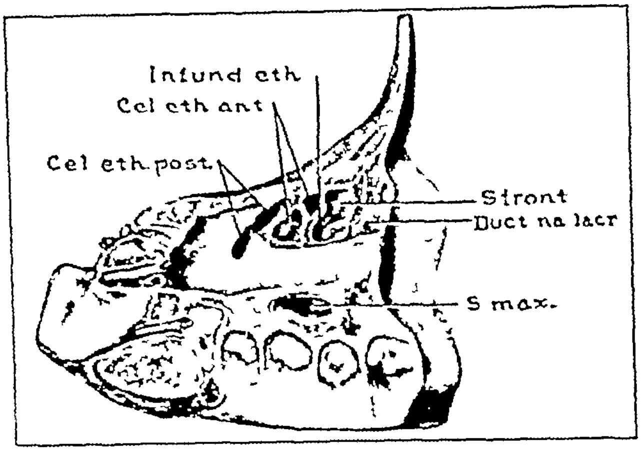

Fig. 1.—From a child 8 days old (after W. Davis).

DEVELOPMENT OF THE ACCESSORY SINUSES IN INFANTS

Let us follow the development of the accessory sinuses from the infant.[2] The ethmoid is the only one which is well developed, the cells are perfect and contain the usual number (Fig. 1). The maxillary is small and rudimentary, not being as large as the bulla cell (Fig. 2). We must always keep in mind that the true sinuses develop from ethmoid cells. The antrum develops first and enlarges rapidly (Figs. 3 and 4). Under the age of 2 years the sphenoid is but an indentation and the frontal has not yet made its appearance (Fig. 5). The transitional stage of the frontal and sphenoid sinuses is from 2 to 6 years. After the sixth year the true sinuses have become well developed and occupy their permanent positions in relation to the surrounding structures. In view of these facts, to speak of a sinusitis per se in infants is manifestly absurd, at least from the standpoint of the anatomist and pathologist. Various forms of ethmoiditis are not being considered in this category.

Exception might be taken to this statement on the basis that the true sinuses have their inception originally from the ethmoid cells, and should be regarded as cavities lined with mucous membrane which is, in fact, the periosteum of the bone. This contention is proper when we speak of a true cavity surrounded by unyielding bony walls and this cavity alone being diseased (similar to a localized abscess). However, this is a far different picture from that observed in infants in whom a purulently diseased mass of cells, resembling a sponge, hangs free in a portion of the upper respiratory tract.

SINUSITIS IN INFANTS

Localized sinusitis in infants, or, to be more explicit, a localized inflammation of the mucosa of the maxillary sinus, has not come under my observation, nor have I been able to find the report of a case in medical literature. When infants (under 2 years) acquire a disease that affects these sinuses, it always attacks the tissues as a whole rather than confines itself to the maxillary sinus or ethmoid cells. These cases then show a general purulent affection of most of the lateral nasal wall incidentally embracing the ethmoid and antrum rather than taking them as a point of inception and remaining therein confined.

COURSE OF INFECTION

I think you will bear me out in this description when you recall the unusual severity with which these cases are always characterized. The infection acutely attacks not only the mucosa but the soft, spongy underlying bone so that almost the entire side of the nose and often the face is affected, always showing a marked predilection to point and rupture externally either above or below the orbit, depending on which portion of the underlying bone is more virulently involved. This picture usually occurs in the sinusitis of adults only when the drainage passages have become occluded. As the antrum in infants is so small that it would be almost impossible to occlude the ostium without obliterating the entire cavity, this sinus can hardly be the focus of infection.

THE ETHMOID

The ethmoid cells present a totally different proposition. Here we have numerous cells separated by their layers of soft, young bone which in itself is as susceptible to disease as its own lining membrane. Small wonder is it then, when the mucosa is once affected, that the bone becomes involved, and the disease spreads through the canaliculi and appears externally on the face. If we accept this view, sinusitis properly speaking in infants does not exist, but a general purulent infection embracing the ethmoid and maxillary sinuses together with the bone not infrequently occurs. This condition should be placed in the

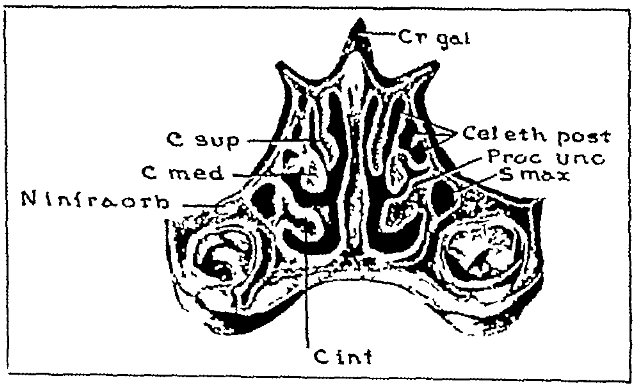

Fig. 2.—From a child 38 days old (after W. Davis).

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Thomas Hubbard (Accessory Sinus Suppuration in Scarlatina, Am. Jour. Dis. Child., July, 1911, p. 11) recognizes this principle.

[2] Davis: Nasal Accessory Sinuses, Philadelphia, 1914.

category of osseous infections and treated as such, rather than classed as a disease of the accessory nasal sinuses

TREATMENT OF ETHMOID INFECTION

The treatment is as simple as it is radical If seen sufficiently early, a thorough endonasal curetting of the ethmoid cells and antrum may prevent the formation of an external fistula and eventually bring about a cure My experience in these cases has shown that, at least a discharge (if looked for) continues for many months after the acute symptoms have subsided

SINUSITIS IN CHILDREN OVER 5 YEARS OF AGE

This condition appears to be a different form from the foregoing when not a sequel of scarlet fever or diphtheria[3] In the first place, its inception is usually a common cold in the head, the discharge continuing until a sinusitis is present, resembling that form seen in the adult Of course, it may be ushered in by an acute attack, but it does not show the tendency to involve the great amount of tissue nor to reach such an abrupt climax as seen in younger children The older the child, the more marked becomes the tendency toward chronicity and limitation It is common in the infant to have the disease result in producing a large area of external suppuration Frequently the first indication of the disease, as far as the surgeon is concerned, is a slight swelling and redness to the median side of one eye, slightly anterior to the lacrimal bone and tear duct This is accompanied by a purulent discharge from that side of the nose Examination shows a well marked purulent inflammation of the ethmoid cells (frontal sinus), and unless it is promptly checked, will rupture externally There is no question that the tear sac is often involved in the inflammatory process, indeed, it has been advanced that this often concomitant dacryocystitis may be the causative factor of the sinusitis[4] After the rupture, the acute symptoms subside, and the discharge becomes chronic and the fistula permanent

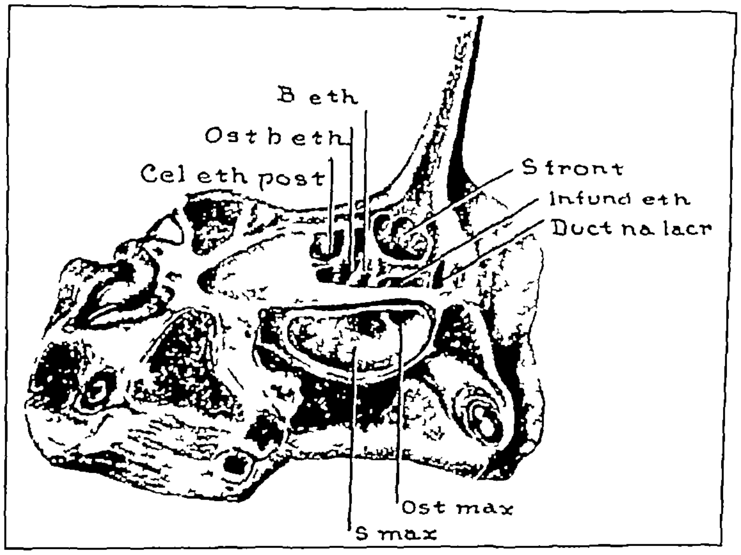

Fig 3—From a child 4 months and 27 days old (after W Davis)

Sinusitis in children, however, does not always first manifest itself externally It may simulate that of the adult by appearing as the continuation of a chronic cold and vague headaches, and intermittent though persistent occlusion of one side of the nose, with considerable purulent discharge from that side, together with the general symptoms of malaise, loss of appetite, anemia, etc It is, however, the exception rather than the rule for the nasal specialist to see the child at this stage unless it has been referred by the general practitioner under whose care it probably has come More often, the disease has advanced to that end stage before it reaches the specialist when complications, such as swollen eye lid with imminent rupture or even the more serious orbital or cerebral manifestations, threaten or are actually present

DIAGNOSIS

The ease or difficulty of the diagnosis will depend largely on the time and pains one takes with the examination As most of those cases occur among the poorer classes and as infants are usually not amiable subjects to handle, one is apt to give them but a cursory examination or turn them over to an assistant Under these circumstances, many cases in the earlier stages will be entirely overlooked and only those conditions which have already manifested themselves externally will be properly diagnosed In a comparatively recent case the predominant symptom will be the profuse nasal discharge Subjective symptoms, such as pain and fever, will rarely be complained of In the diagnosis, one condition which is rather common must be differentiated, that is, adenoids associated with postnasal suppuration or infected nasopharyngeal adenoid tissue This differentiation, of course, can be accomplished by proper examination or, better still, one sweep of the curet

Suppose, then, we had established a purulent secretion from one or both nostrils but were unable definitely to state its source, although one or more of the sinuses was suspected What is our next course? Several ways and means are open to our use

In the first place, by the nasopharyngoscope we can determine the approximate places of secretion Before it is used, the necessity of thoroughly cleaning the nostril of secretion and shrinking the mucous membrane is of course obvious It may also be necessary to have the aid of a strong nurse or an assistant to control the young infant or recalcitrant child, but it is well worth the trouble for the gained information

The puncture needle as a diagnostic means in children does not especially appeal to me, although Hajek[5] reports good results in children as young as 5 years When one considers the small size of the antrum even should pus appear on irrigation through the needle, it would be difficult to determine whether or not the pus really was secreted by the antral mucosa Transillumination as a diagnostic factor is unreliable in adults, in children it is positively misleading and, in my experience, worthless, although one writer[6] appears to have found it useful

The Roentgen ray is of positive assistance, which has been proved in a most exhaustive article by Haike[7] and recently by Coffin The plates should give one a fair idea of the size, shape and condition of the various sinuses and, when compared with the normal side, show even more changes than are visible in the adult In all suspicious cases unless the Roentgen ray has been used, not all reliable diagnostic means have been employed

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[3] This form will not be included, as it has been exhaustively treated elsewhere (Killian Die Erkrankungen der Nebenhöhlen der Nase bei Scharlach, Ztschr f Ohrenh, 1908, **56**, 189)

[4] Van den Wildenberg Complications des sinusitis frontales chez les enfants, Verhandl d III Internat Laryngol Cong, 1911, p 322

[5] Hajek Nebenhöhlen der Nase, 1914, p 11

[6] Oppenheimer The Surgical Anatomy, Diagnosis and Treatment of the Inflammatory Affections of the Nasal Accessory Sinuses in Children, Med Rec, New York, Feb 21, 1914

[7] Haike Die Roentgenuntersuchung der Nasennebenhöhlen der Kinder, Arch f Laryngol u Rhinol, 1910, **23**, 206

TREATMENT

Conservative —In the beginning of an attack it can almost always be brought under control by general and conservative intranasal treatment, particularly when the symptoms point to frontal or anterior ethmoidal trouble (scarlet fever being excluded) This is also the experience of some of our foreign colleagues[8] Calomel, one tenth grain, with sodium bicarbonate, 1 grain, should be given every hour until free purgation is produced Calomel has a peculiarly beneficial effect with children and as a general eliminant cannot be surpassed Locally a cleansing douche of physiologic sodium chlorid solution several times daily will suffice to keep the nose free

Vaccines —I have found these more useful in this class of sinus disease than in any other My experience has been confined mostly to those commonly carried in stock, although on one or two occasions these preparations have failed and the subsequent use of the autogenous vaccine brought about a cure

Surgical —There is one thing marked in these cases, it is that the indications for surgical interference are very definite A case is either one for conservative treatment or for operative procedure That boundary line so perplexing in the adult is, at least as far as I know, not seen in children, and when operation is indicated, it should be performed at once In no other class of patients does the disease progress so fast as in the young child, and often it is so advanced, when coming under our observation, that a most extensive and radical operation is required to save the child's life, not to speak of a cure of the affection When we observe a child with a deformed face from a sinus abscess about to rupture, with exophthalmos, swelling of the lids, edema and a redness which together constitute a hideous deformity, one cannot help but feel, as Coffin[9] states, that there existed a previous stage during which proper treatment would have prevented the present serious condition

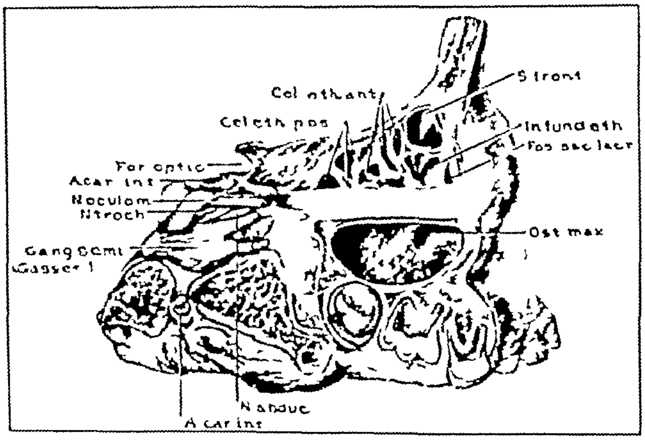

Fig 4 —From a child 1 year and 4 months old (after W Davis)

When a case comes to operation, a simple conservative procedure is usually of no avail Chiari and Marschick,[10] by the removal of the anterior end of the middle turbinate and antiphlogistic measures, were able to bring only 25 per cent of the cases to the healing stage We should first try the intranasal exenteration of the diseased ethmoid cells and maxillary antrum with subsequent applications of an organic silver compound and administration of appropriate vaccines Intranasal operations alone, however, are usually unavailing if much redness and swelling have appeared externally in the region of the eye If it is necessary to make an external opening, even though a fistula had already formed, the incision should only be large enough for drainage The bulk of the work should be intranasal I have never seen a patient who did not recover under this form of treatment Regarding the maxillary sinus, the Caldwell-Luc or any similar procedure through the canine fossa should never be resorted to on account of the destruction of the teeth germs which must necessarily follow

If the antrum alone is affected, any thorough intranasal operation will give as good results as one can hope for from any of the more radical or external methods

2032 Chestnut Street

ABSTRACT OF DISCUSSION

Dr Albert H Byfield, Iowa City, Iowa The question of the infection of the sinus in infants should always impress every physician as soon as he finds an acute rhinitis or coryza becoming chronic. I recently encountered five cases which looked like pellagra In the fifth, when it seemed that the child was about to die, noting the purulent nasal discharge I asked Dr Dean s help and he found a definite enlargement of the cranial tissues, a bulging and the treatment in this case was followed by improvement within a week. The same depression which had been the picture in the other cases, such things as the falling down, dizziness, the skin rash, general weakness gradually but surely disappeared Sneezing is a common symptom and I think often we do not realize the significance of it. I have seen ethmoiditis in a case of psychic vomiting, associated with thyroid disturbances in children with enlargement of veins and with diphtheria When I see a child with a nasal discharge, I ask whether there has been sneezing or not I frequently find that these cases are worth sending to the nose and throat department and the treatment there instituted gives relief

One point in regard to the differential diagnosis is that those things that are associated with symptoms which might lead you to suspect ethmoidal infections, namely, the question of rhinorrhea with sneezing, always occur in nasal asthmatic attacks to which children are subject. I therefore made an appeal for careful and thorough topical diagnosis of chronic or acute nasal discharge in infants and children The same thing applies in children in at least a certain degree that applies to adults We see many children whose lives and health are affected by focal infection of the tonsils, causing digestive disturbance and chronic poisoning of the nervous system The subject of sinus infection is important, and who knows that it may not be one of the things that lead, perhaps, to ozena in the adults

Dr. L A Coffin, New York I showed at Atlantic City by lantern slides a double series of Roentgen-ray findings in children from 6 months to 15 years of age, one series showing clear, the other diseased sinuses The 6 months child showed distinct and clear antrums Dr Skillern has almost taken ethmoids out of the sinus classification To me, the ethmoid is a group of sinuses with which we shall still have to deal and we shall deal with them as we deal with the other accessory sinuses, and their disease is in every way comparable to diseases of the larger sinuses What we are especially interested in is that this class of disease be more generally recognized by the pediatrician

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[8] Glas Verhandl d. III Internat. Cong 1911 p 332

[9] Coffin Empyema of the Nasal Accessory Sinuses in Children under Fourteen Years of Age, Tr Am Laryngol. Assn 1914 p 111

[10] Chiari and Marschick Zusammenhang der Erkrankungen der Orbita und der Nebenhohlen der Nase Med Klin 1908 No 16

There is a train of eye symptoms which we frequently see in children, comprising exophthalmos, chemosis, keratitis, etc, almost invariably due to a thrombophlebitis arising from empyema of one or more of the accessory sinuses Such extreme conditions are frequently the result of the nonrecognition of the seriousness of the so-called common cold in children If the pediatrician or general practitioner does not know how to handle these cases, he should early seek the advice and help of the rhinologist.

Dr Skillern did not mention suction as a form of treatment Suction properly applied will give brilliant and satisfactory results It can be used by the pediatrician as well as by the rhinologist, and not infrequently obviates all necessity for operative procedures that would otherwise be required

Dr Skillern says the Luc operation should not be performed Personally, I feel that radical operations are safer than intranasal work It is hard to do intranasal work in infants It necessitates the use of ether, and the intranasal exenteration of ethmoids under general anesthesia is a dangerous operation even in adults

Dr **Greenfield Sluder**, St Louis It seems to me that Dr Skillern is proving a difference with very little differentiation, but Dr Coffin has emphasized that That an inflammatory involvement of the lateral wall of the nose be differentiated from a sinusitis, it seems to me is pretty much of a nicety I believe these cases are to be classed as a sinus inflammation quite as much as in the older patients with a pus cavity They come under not so much a suppurative head, as Dr Skillern emphasizes, but under a hyperplastic classification. Dr Skillern spoke of all the sinuses but the sphenoid The sphenoidal sinus—and in this statement I quote his authority, Warren Davis of Philadelphia—the sphenoid begins in the sixtieth day of fetal life At the end of two years it has reached laterally to the foramen rotundum, at the end of six years it has reached the floor of the sinus and the Vidian canal Sinus involvement in young persons seems to be difficult, and more so when in the posterior portion, according to age I feel absolutely sure that sphenoid—and when I mention that I include postethmoid—involvement is of frequent occurrence in childhood I have been in the habit of separating infancy at the second year from childhood beyond the second year The diagnosis of postethmoidal sphenoiditis in children is exceedingly difficult Postnasal examination is to be achieved rarely In such cases suppuration is not profuse There is pain and swelling and a more or less serous discharge, which continues These cases I have seen repeatedly exploited, as Dr Beifeld has said, as psychic vomiting I have repeatedly seen them made the asthma of childhood, and have seen that asthma recover after postethmoidal interference

Dr **Ross H Skillern**, Philadelphia There is no question of the truth of Dr Coffin's statement regarding the baby sinuses I quoted directly from him in this respect I do not know anything about the suction method of treatment in children I have never tried it but should like to I imagine it would be a rather difficult procedure, however We all know that it is difficult enough to treat children anyway, and to give suction in these cases it seems to me would be a difficult thing

Dr Sluder says that in most cases the ethmoids are hyperplastic. That is true He did not mention that these cases occur in infants under 2 years of age, but I suppose that is what he means I do not recall seeing a case of hyperplastic ethmoids in a baby Regarding the connection between the ethmoids and sinuses, that is true, but at the same time, I cannot help feeling that a mass such as the ethmoid, representing structurally a sponge covered with thin mucosa, is totally different from the smooth sinus with hard, bony walls, and it seems to me that it must be, and often is, affected in a totally dissimilar manner

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Signs of Death—It is a sign of death when the forehead grows reddish and eyebrows sink the left eye decreases, the tip of the nose becomes white, the chin falls, while the pulse runs, feet grow cold and the belly is relaxed—Galen

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EXPERIMENTAL PYELITIS IN THE RABBIT *

H F HELMHOLZ, M D
AND
CAROL BEELER, B S
EVANSTON, ILL

Numerous attempts have been made in the past to produce pyelitis by injecting bacteria into the bladder, with the idea of getting an ascending infection, and by injecting organisms into the circulation and expecting them to set up lesions in the kidney during the process of being filtered out It has long been known, and it is becoming increasingly more evident, that bacteria during any infection, if they reach the blood stream, are likely to be excreted in the urine This applies to acute as well as chronic diseases The kidney acts as a filter to remove bacteria from the circulation If this is constantly taking place, we must naturally assume that the kidney has a great resistance to these organisms or that the bacteria are carried out so rapidly that they do not have an opportunity to multiply

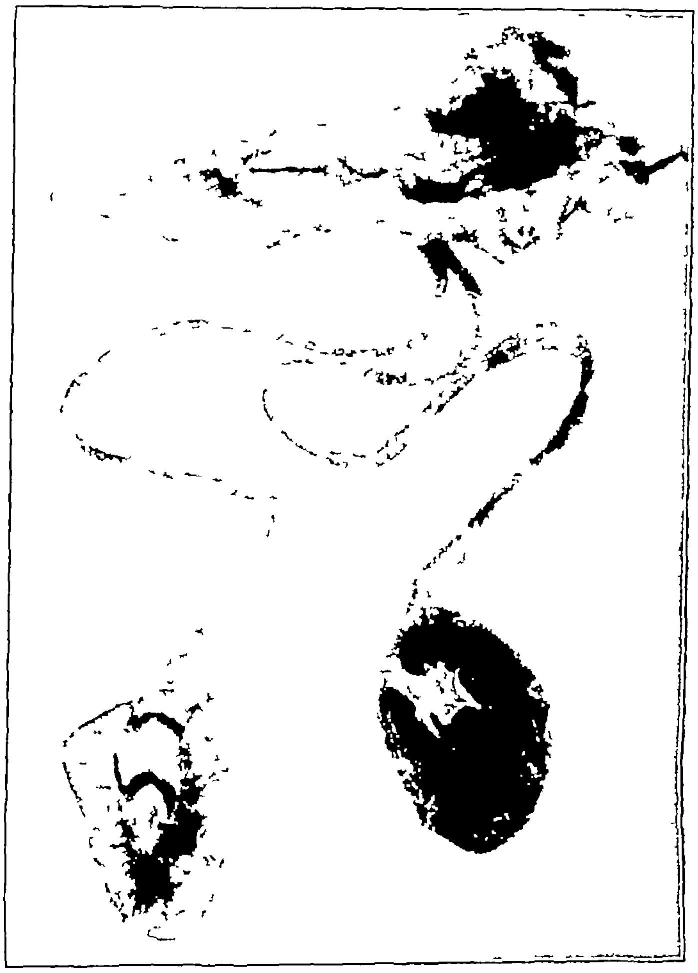

Fig 1 —Spontaneous pyelitis (distended ureters and pelvis)

The two possibilities for infection are (1) a loss of resistance of the kidney or an increase in the virulence of the organism, and (2) a stopping up of the natural washing-out of the urinary passages The latter one of these factors has been studied by a great many observers, who have all showed that anything that obstructs the flow of urine makes possible an infection of the kidney, whether the infecting organism is introduced from the bladder or by the blood stream. Furthermore, the work of Stewart[1] on ascending infection of the kidney by ureteral transplantation into the rectum has shown that the infection spreads upward by the lymph channels and that the spread by the lumen of the ureter is less of a factor than formerly supposed. In this work, however, the lymph channels were cut and naturally offered excellent opportunity for the spread of infection. Hess[2] came to the conclusion that something more than the simple injection of colon bacilli into the bladder was necessary to produce ascending infection in the rabbit. The previous injection of turpentine or other irritant into the bladder was sufficient to bring about an involvement of the upper urinary tract. More recently, Eisendrath and Schultz[3] have attempted to show that infection of the bladder with *Bacillus coli*, streptococci and *B. proteus* travels up the periureteral lymphatics. They used rabbits and dogs in their work. They described very extensive changes in nineteen of thirty-eight animals but recovered organisms from the kidney in only six of their positive cases in their first series and in none of their second. It seems that in view of the negative bacteriologic results, the causal relationship of the lesions and the organisms injected must be left open.

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* From the O S A Sprague Memorial Institute Laboratory of the Children's Memorial Hospital

* Read before the Section on Diseases of Children at the Sixty Eighth Annual Session of the American Medical Association, New York June 1917

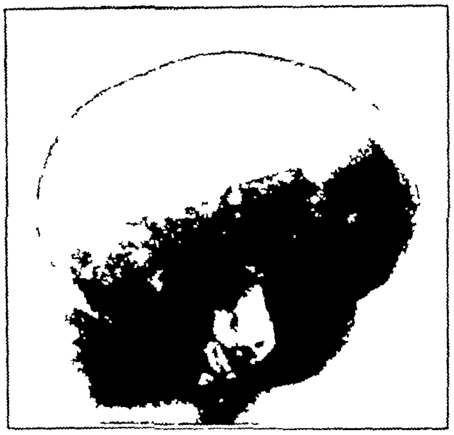
Fig. 2.—Hematogenous cortical abscesses.

It is not our object here to go into a discussion of the etiology of pyelitis, but merely to point out that with an unobstructed urinary tract there have been practically no constantly positive results in the production of pyelitis experimentally, either by intravenous or intracystic injection. In a previous series[4] of intravenous experiments we were able to produce kidney lesions in only eight out of sixty-six animals injected with colon bacilli, and in four out of eleven animals when injected with a mixture of colon bacilli and pneumococci, the tendency of the organisms to produce lesions in other organs being just as great as in the kidney. During the course of the experiments just cited in controlling the urine of all animals before injection, we found a female rabbit with a constantly purulent urine. Cultures taken from a catheterized specimen of urine showed a pure culture of a gram-negative bacillus that had the following characteristics:

The organism grew well on all mediums. There was a profuse yellowish growth on agar. Gelatin was not liquefied. Litmus milk was rendered acid and coagulated, but there was no digestion of the casein. Indol was produced. There was acid and gas formation in dextrose, lactose and saccharose. The organism thus belongs in the group of *Bacillus coli-communior*.

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1. Stewart: A Study of Ascending Infection, etc., Univ. Pennsylvania Med. Bull., 1910, **23**, 233.
2. Hess: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1913, **26**, 135.
3. Eisendrath and Schultz: Jour. Med. Research, 1917, **35**, 295.
4. Helmholz, H. F., and Beeler, Carol: Focal Lesions Produced in the Rabbit by Colon Bacilli Isolated from Pyelocystitis Cases, Am. Jour. Dis. Child., July, 1917.

SUMMARY OF INJECTIONS

Series	No.	Kidney Lesions				Other Organs Involved
		Total	Pyelitis	Abs.	Bact.	
A. *Intravenous Injection*						
I	10	6	4	4		Hemorrhage into lung
II	2	2	2	1		Abscess of seminal vesicle.
III	4	2	2	1		Hemorrhage of cecum and rectum
IV	2	2	1	2		0
V	5	4	2	3		0
VI	2	2	1	2		Chronic nephritis
VII	2	1	1	0		Generalized peritonitis
VIII	2	1	1	1		0
IX	3	2	–	2		0
	32	22	16	16		
B. *Intracystic Injection*						
II	2	0	0	0		Infected Right Testis.
IV	2	2	2	0		0
V	5	3	1	0	2	0
VI	2	2	2	1		0
VII	2	2	2	0		0
VIII	2	2	2	0		0
	15	11	9	1	2	
C. *Rectal Injection*						
VII	2	0	0	0		0
VIII	2	0	0	0		Gram negative bacillus.*
D. *Oral Administration*						
V	5	0	0	0		1x Bladder Gram positive coccus. Gram negative bacillus
VI	4	0	0	0		2x Bladder Gram negative bacillus

* From bladder urine.

HISTORY

Feb 17, 1917 The first urine examined showed about 150 pus cells to a low power field

February 9 There was a large excess of pus cells

February 10 to February 20 Daily examination revealed a large number of pus cells, single and in groups

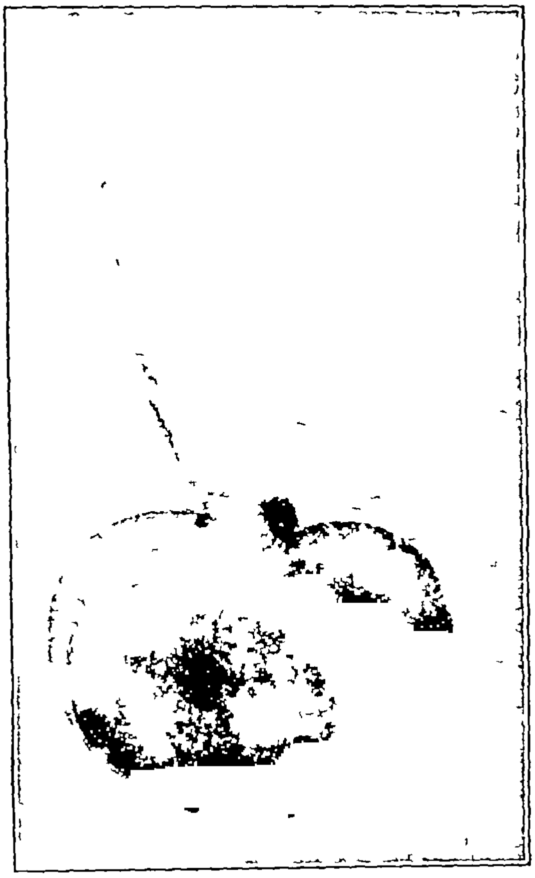

Fig 3—Ascending pyelitis (distended ureter)

February 20 A catheterized specimen of urine was cultured in litmus lactose agar, plain agar and broth

February 21 There are innumerable colonies on both plates

February 23 Specimens were expressed every other day showing albumin and casts in addition to pus cells

March 3 Another catheterized specimen was cultured, pure culture same as obtained on February 20

The animal was chloroformed, as it was getting very much weaker

Necropsy—On opening the peritoneal cavity the abdominal organs all appear practically normal The bladder is distended with urine The stomach, gastro-intestinal canal, spleen, liver, gallbladder, heart and lungs show nothing abnormal On dissecting free the overlying organs the ureters on both sides are seen to be considerably dilated, as far down as the brim of the pelvis Beyond this point they appear to be of normal diameter No apparent pathologic constriction in the ureter at the brim of the pelvis was visible The pelves of both kidneys were smooth, and of a reddish brown color, the capsule stripped readily On section the cortex was of normal thickness, the striations regular The outer portion of the medulla was deeply congested The pelves in both kidneys were markedly distended, as seen in Figure 1 The left kidney pelvis was filled with thin purulent material, the right practically empty The bladder urine showed only relatively few leukocytes, numerous casts and much debris Cultures taken from the bladder and right kidney pelvis yield a pure culture of gram-negative bacillus

Histology—The bladder mucous membrane in the entire section is practically intact In areas there are small clusters of lymphocytes, there are practically no polymorphonuclear leukocytes to be seen in the section Kidney There is considerable degeneration of the epithelium and dilation of collecting tubules, in areas focally there is considerable increase in connective tissue. In the medulla, especially toward the tip of the papilla, there is marked leukocytic infiltration about the tubules Eosinophil cells are much in evidence The mucosa of the pelvis is apparently thickened and shows considerable infiltration with leukocytes The pelvis is filled with masses of polymorphonuclear leukocytes

The colon bacillus isolated from the catheterized specimen of urine was used in nine series of experiments The technic used in the experiments was as follows The intravenous injections were made with a bacterial suspension that was made by centrifuging 15 c.c. of a twenty-four hour broth culture and suspending the bacilli in 5 c c of physiologic sodium chlorid solution One c c of this suspension was injected into the ear vein The intracystic injections were made after carefully catheterizing the animals and then allowing 5 c c of the bacterial suspension to run into the bladder[5] In the feeding experiments 8 c c were injected In the first series of ten animals which were injected intravenously, six showed lesions of the kidney, in four instances a pyelitis, and in four instances cortical or medullary abscesses In two instances, as is evident from the table, both were present In Series 3 and 9 also, all the injections were intravenous In the other series the same culture was used in the injections given intravenously, intracystic and either rectally or orally, in order that the results could be more accurately compared

In the thirty-two animals of nine series injected intravenously, twenty-two showed lesions of the kidney, in sixteen instances pyelitis and in sixteen instances cortical (Fig 11) or medullary abscesses In ten instances there were both abscesses and pyelitis No doubt if the animals with abscesses had lived they would all have developed a pyelitis also Of the thirty-two animals only three showed lesions outside of the urinary tract that could be ascribed to the colon bacillus one instance each of abscess of the seminal vesicle, hemorrhage of the cecum, and generalized peritonitis The peritonitis was due in large measure no doubt to extensive coccidiosis The absence of lesions in other organs is just as striking as the localization of the organism in the kidney in twenty-two of the thirty-two cases

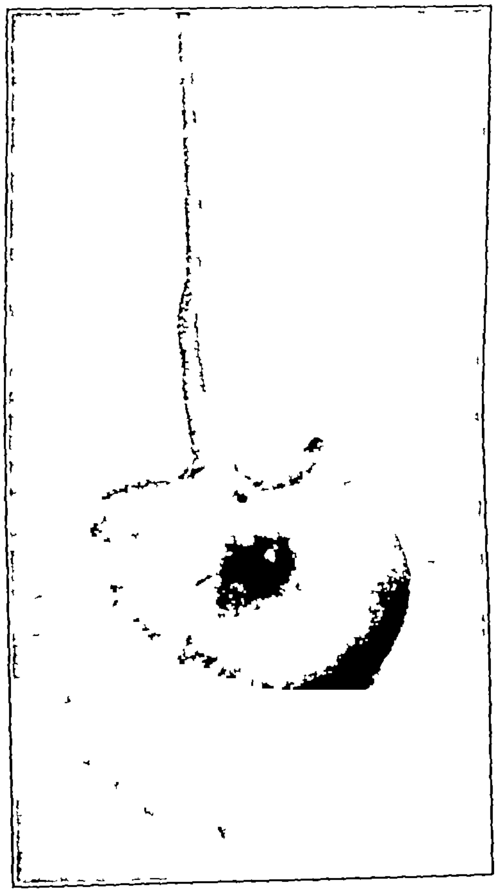

Fig 4—Ascending pyelitis (cortical abscesses)

The intracystic injections consist of six series, totaling fifteen animals In four series of two animals each, pyelitis was produced in 100 per cent In the fifth only one had a definite pyelitis but in two others gram negative bacilli were isolated from the pelvis of the kidney In the sixth series neither one of the two animals injected acquired a kidney infection Figure 3 shows the swelling of the ureter Figure 4 the one kidney with cortical lesions in the intracystic series

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[5] Three control animals injected with a dilute solution of gentian violet showed that no fluid passed beyond the bladder

Four animals that received rectal injection and nine that were repeatedly fed the colon culture showed no lesions of the urinary tract except that in one instance in the rectal series and in three instances in the oral series, colon bacilli were isolated from the bladder but not from the kidney

The serum of a rabbit immunized to the specific organism isolated from the urine agglutinated the organism in a dilution of 1 2000 It did not agglutinate several strains of *B coli-communior* isolated from human cases of pyelitis nor several strains of *B coli* isolated from rabbit feces A *B coli-communior* isolated from the feces of the original pyelitis rabbit was agglutinated in the same dilution as the colon bacillus isolated from the urine

COMMENT

The remarkable specificity of this organism is of interest from two very different points of view first, it enables us to study better than ever before the etiology and probably the treatment of kidney infections, and secondly, from the purely biologic point of view, it shows us the extreme specificity the colon bacillus can acquire in localizing in the kidney on intravenous injection

These experiments prove without a doubt that pyelitis can be produced experimentally by intravenous injection as well as by injection into the bladder What the route of the infection is from the bladder to the kidney we must leave an open question at this time One point that we do wish to make, however, is that this work shows that if the organism has a specific affinity for the kidney its introduction into the bladder can be of very serious consequence to the individual It will take further study to determine whether the bacilli reach the kidney via the lumen, the lymphatics or the blood stream Experiments in that connection are at present under way

If we compare these experiments with the results obtained by the injection of organisms isolated from human pyelitis cases, the specificity of this organism is even more striking In sixty-six animals injected with different strains of *B coli* only eight showed kidney lesions, and twenty-one lesions of the other organs, with this organism, of thirty-two animals injected twenty-two showed kidney lesions and in only three instances were the other organs affected

The so-called epidemics of pyelitis that have been described from various European clinics might well be ascribed to an organism that, as this organism, has a specific affinity for the kidney tissue

The specific localization of organism in tissues has been of great interest, especially since the work of Rosenow on the pneumostreptococcus group Rosenow[6] in his work on the colon bacillus and streptococcus in gastro-intestinal infection, especially of the appendix, showed that the combination had specific tendencies to localize but that the colon bacillus alone had no such powers Our work on the colon bacilli of human pyelitis cases led to practically the same result With this organism the specificity manifests itself not only in that the kidney is involved in about 70 per cent of the injections, but that in less than 10 per cent of the injections is there involvement of any other organ The intracystic infections are not of much importance in this connection because the distribution of the bacteria is not so widespread throughout the system as with the intravenous injections

SUMMARY

1 Infections of the kidney were produced in 70 per cent of all animals injected by the intravenous or intracystic route with a colon bacillus obtained from a rabbit with spontaneous pyelitis

2 The organism, a *Bacillus coli-communior,* had a specific tendency to localize in the kidney tissues

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A CASE OF POISONING BY MUSTEROLE

DAVID I MACHT, M D

BALTIMORE

The following case should be of interest not only to the pharmacologist and toxicologist but also to the general practitioner

Mrs S aged 32 consulted me May 31 1917, on account of a rash There was a scarlatiniform eruption over the neck face chest arms and back The rash resembled very much that of scarlet fever Further examination however, contradicted such a diagnosis There was no history of exposure to scarlet fever, the patient s temperature was normal, the pulse rate was 76, there was no sore throat strawberry tongue or any other sign of scarlet fever and the general condition of the patient was good except that she complained of itching and burning A very marked irritation of the conjunctivae was also noted Physical examination of the chest and the abdomen was negative There were no abnormal urinary findings

On investigating the case more carefully, it was learned that the patient on the day before was complaining of pain behind the right ear and that some friends advised her to apply musterole to the painful spot Accordingly the patient rubbed in thoroughly some of the nostrum in the right mastoid region, and on the following day the general exanthem appeared

Musterole has been described[1] as being essentially a mixture of lard or some similar material, with oil of mustard, menthol and camphor

Oil of mustard is known to the chemist and pharmacologist to be an exceedingly irritating drug attacking especially the eyes When applied to the skin for any length of time it quickly draws blisters Erysipelatous eruptions, general dermatitis, and even necrosis of the skin have also been described following its use If absorbed into the circulation, oil of mustard may produce albuminuria and even nephritis[2] Its use in therapeutics is for that reason very limited, and when it is employed, care should be exercised in handling it Mustard plasters are for all purposes safer than the oil of mustard, and can be employed whenever the oil is indicated A mixture of such an irritant oil as oleum sinapis and lard is very liable to be absorbed through the skin, and therefore the indiscriminate use of such oils in salves under fanciful names, without a physician's supervision, should be discouraged, as it may lead to untoward effects, such as in the case described above

3218 Auchentoroly Terrace

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[6] Rosenow Jour Infect Dis 1915 **16,** 240

[1] Musterole The Journal A M A Jan 20 1917 p 214

[2] Compare Lewin Nebenwirkungen der Arzneimittel Berlin, 1899, p 679

Special Article

AT FORT RILEY

Fort Riley, on the Union Pacific Railway about 60 miles west of Topeka, is one of the largest of the historic forts of the West, and by many is considered the most beautiful

THE TERRAIN

Situated on the Republican River at its junction with the Smoky Hill River to form the Kaw or Kansas, the post lies in a large, wonderfully drained basin with many small cañons leading down from the plateau, and innumerable side cañons opening into these A noticeable feature is the rim rock which juts out from the hillside just below the level of the plateau surrounding the basin

For a number of miles this plateau, at a level of perhaps 150 feet above the camp, extents to the north and to the west, forming an indefinite number of drill and maneuver grounds Up the hill to the drill grounds is about the first hike of a new comer

CANTONMENTS

The cantonments here are of the type approved by the War Department, and are substantially identical with those described and pictured in The Journal as they are found at Fort Benjamin Harrison and at Fort Oglethorpe From 100 to 140 men are in each company, and each company has its own barracks with its mess hall immediately adjacent

Up to the present date — August 10 — ten companies have been formed with a total enrolment of 912 men

Special emphasis has been laid on these companies at Riley Quite irrespective of his actual rank, one officer is appointed permanent captain of the company, others as lieutenants, others as sergeants and corporals, and the rest make up the roster of privates This arrangement has been a wonderful help in giving the medical officer a thorough insight into the actual organization and working of a company, and in addition, it has stimulated a healthy rivalry between the companies in matters of drill, discipline and general efficiency In nearly every company the "top" sergeant selected has been a man who has seen service, and has been able to drill men in such fashion that they take on the real military spirit in a surprisingly short time To the casual observer, it is little short of wonderful to see how a group of medical men, who as a class are intensely individualistic and self-centered, sink all this below the threshold of their consciousness, and think, reason and act as units of a military organization

THE WORK

There is perhaps no better way of getting an idea of what the men do than to schedule a typical day's work

5 15	a m	First call for reveille
5 30	a. m	Reveille
5 30 to 5 50	a m	Straightening up and getting things ship-shape, polishing shoes and puttees
5 50	a m	Mess (breakfast)
6 10 to 7 00	a m	Study or perhaps repairing clothes
7 00 to 7 20	a m	Physical exercise
7 30 to 9 20	a m	Drill
9 30 to 10 20	a m	Lecture Army Regulations
10 30 to 11 30	a m	Lecture Manual of the Medical Department
11 30	a m	First sergeant's call
12 00	m	Mess (dinner)
12 30 to 1 15	p m	Study or finishing up the various odd jobs
1 15	p m	First call for afternoon instruction
1 20	p m	Assembly
1 20 to 2 20	p m	Lecture Field Service Regulations
2 30 to 3 30	p m	Lecture Examination of recruits
3 30 to 4 50	p m	Equitation or hike

At 4 50 p m, hot and tired, every one races for the cold shower and a change of clothes This can just about be done in time for the day's closing ceremony — retreat

Falling in at the assembly at 5 40 p m, retreat is blown at 5 45, immediately followed by "To the Colors," the company standing at attention and the company commander at the salute It is a hungry lot of men who go to mess immediately after retreat Finishing supper at about 6 15, every one sits around and smokes or discusses the day's work till 7, and then studies from 7 until 9 and generally until 10 The call to quarters is blown at 9 45, which means hustle to bed, and taps at 10 finds every one in bed and the lights out Every newly arrived man will solemnly declare that he has not been in his blankets over an hour when that bugler blows reveille, and he has to dash into his clothes just in time to hear the "top" call out in typical stentorian tones, "Fall in," and a new day's work begins

Later on some of the lectures and quiz work are replaced by practical work such as tent pitching, map making, or a practice hike, staying on the field over night, sleeping in a pup tent and doing one's own cooking, etc Toward the last of the course, the study lessens considerably, and men are assigned to field hospitals or ambulance companies for practical work with these units Others may be given a platoon of enlisted medical corps men to drill, or are given sanitary inspection to make If one misses lectures while doing these, he makes them up — somehow, somewhere

RECREATION

There is a tradition at Fort Riley that the man who has time for recreation uses it by doing some extra work Saturday afternoon there is no instruction, and one can do as one likes, but on one's first Saturday afternoon, one is likely to be detailed to fit shoes to a couple of hundred men, the next, one may be "on" at the camp infirmary, and so it goes One hears rumors of pink teas, tennis, concerts and dances elsewhere, but not at Riley The nearest town, Junction City — or "Junktown," as it is familiarly known — is 5 miles away, and about all an officer can want there is to get a hair cut or invest in some trifle

MESS

The mess is the usual officers' mess — plain, generally well cooked, the food eaten on a long deal table, and seasoned by appetites bordering on the ravenous

ESPRIT DE CORPS

The one thing which is the goal of the camp which is striven for at all times and in all ways is that indefinable thing known as *esprit de corps*—in sporting parlance "playing the game Each new company acquires it a little quicker than the last one and prides itself on the fact Every officer realizes that no instructor asks him to do that which he doesn t do himself

If one is jerked up sharply for a bit of slow work at drill or in quiz one remembers one's college football or baseball experience when the coach 'bawled him out' or if he is a teacher of medicine he remembers his own way of doing and so he plays the game for he sees that the system works wonders When one sees in how short a time a group of civilian physicians can be transformed into a body of trained medical officers eager and able to maintain the high traditions of the Army one realizes that this is the best possible commentary on the efficiency of the system and on the enthusiasm of the instructors who have made the system a living reality

While there is but little talk of the war and its possibilities, the undercurrent of deep feeling is evident on every hand and this typical American spirit play the game and play it to the finish ' is the reason of it all

The following is a list of those in the photographs

ARKANSAS

44 Huffman K. B Bentonville
105 Powell B A Camden
13 Proctor F R Fordyce
218 Fo es Ernest L. Van Buren

CALIFORNIA

2[illegible] Cline Harry A Burbank
[illegible]3 Downs J M Los Angeles
245 Luckie Lorenzo I Los Angeles
247 Sprague Fred F Los Banos
330 Newman Richard J Oakland
4 Reynolds H I Palo Alto
18 Stolz H R Palo Alto
200 Roberts Wm H Pasadena
7 Smith A W Pasadena
[illegible]24 Irones R B San Diego
46 Smith F J San Diego
53 Alden B F San Francisco
45 Dowdall R J San Francisco
56 Ffoulkes B San Francisco
26 Flynn T J San Francisco
[illegible]5 Gibson A C San Francisco
205 Glover Cosmos A. San Francisco
2[illegible]9 Howe Theodore G San Francisco
14 Howell E H San Francisco
35 Reddy John J San Francisco
80 Sampson W A San Francisco
24 Stuckey H W San Francisco
28 Weed F W San Francisco
103 Berlew J M Santa Ana
[illegible]1 Winter F E Santa Ana
2[illegible]9 Smythe Hudson Stockton
89 Lewis W I Ventura

COLORADO

238 Allen Floyd R Colorado Springs
132 Bancroft George Colorado Springs
297 Filmer Burnett A Colorado Springs
48 Stough C F Colorado Springs
321 Gjellum A B Del Norte
237 Bane, Wm M Denver
124 Dorset B C Denver
283 Linnoff Wm C Denver
61 Carwood A C Denver
62 Jones W W Denver
6 Kent W C Denver
236 Lunt Lawrence K Denver
104 Atkinson C F Fort Collins
174 Rew Albert W Fort Collins
285 Leydam James H Frederick
165 Frank W W Glenwood Springs
280 Edwards Ernest C La Junta
314 Turner Lloyd O Stoneham

CONNECTICUT

273 Landry A B Hartford

DISTRICT OF COLUMBIA

118 La Garde Louis A Washington
29 Snyder Craig R Washington

IDAHO

178 Howard Wm F Pocatello
13 Sprague F M Pocatello
74 Bland C Preston
316 Ingram Jesse W Priest River
214 Montgomery Chas F Wallace

ILLINOIS

275 Wilson Clyde S Ablong
20 Kellar D H Anvas
498 Monroe C W Arthur
554 Stevens H I Ashley
516 Harrod R W Avon
161 Hendricks W W Bardolph
507 Kunz F O Beardstown
240 Field Albert Bement
458 Lewis C F Brussels
574 Hughes L D Carbondale
478 Edwards F M Centralia
493 Adkins R E Chicago
571 Allport W H Chicago
326 Barnes Carl Chicago
466 Bernhardt H B Chicago
496 Bettman R B Chicago
202 Bower Albert G Chicago
430 Brodsky L L Chicago
163 Brown A K Chicago
418 Brucker E. A Chicago
495 Colebaugh C W Chicago
438 Cornell, J W, Chicago
36 Davis George G Chicago
44 Davies H K, Chicago
1[illegible]2 Edison I M, Chicago
9 Freeman H P Chicago
78 Gatewood I I, Chicago
138 Green Thomas S Chicago
21 Harvey B C H, Chicago
481 Howard W H Chicago
474 Jared A M, Chicago
419 Jones K T Chicago
47 Kerr I K Chicago
259 Krasa J M Chicago
492 Kuhn, I C, Chicago
194 Leahy Thomas M Chicago
325 Lower Frank S, Chicago
1 Lueders A H Chicago
22 Lyons J B Chicago
[illegible]86 McGuire John W Chicago
526 Meacham W C, Chicago
429 Mellinger H A Chicago
420 Merritt I W, Chicago
[illegible]05 Miller F B, Chicago
7[illegible] Mock H F Chicago
[illegible]35 Rice Wm P, Chicago
442 Robinson F T Chicago
41 Roblee L. H, Chicago
5[illegible]3 Ro enbaum I W, Chicago
221 Sweeney John S Chicago
213 Thorpe John N Chicago
282 Thurlow Ralph M Chicago
544 Van Alyea O I Chicago
11 Von Zelinski W I Chicago
58 Webster I W Chicago
61 Werlich K C Chicago
59 Williamson C S Chicago
102 Wyatt B I, Chicago
484 Armbruster A C Collinsville
3 Wilhelmy A H, Decatur
567 Harnack K Downers Grove
[illegible]2 Puffer M I Downers Grove
152 Applewhite Lee D E. St Louis
563 Boyne W W E St Louis
189 Harney Louis C, E St Louis
339 Williams S W Eldorado
459 Bowman N W Flora
145 Walton James C Forest City
556 Moffett R A Gladd
111 Hall W L Greenville
545 Bond R G Harrisburg
559 Cummins F W Harrisburg
550 Fuson C M Harrisburg
230 Van Kirk John A Hatseka
268 Baker L W Herrin
182 Murrah Frank C Herrin
[illegible]6[illegible] Jacks R R Highwood
532 Brink H W, Hopedale
271 Pearce I B Jacksonville
199 Woltman H C Jacksonville
258 Lumley Zoda D, Kampsville
453 Chapman W E Leland
107 Gaffney C C Lincoln
250 Fowler Loren L. Marion
64 Barker F McWaukegon
566 Floreth G A Mount Olive
169 Ellis E K Murphysboro
417 Barclay C K New Lenox
261 Morgan D A Nilwood
543 Alderson A L Pana
181 Knox Thos B Quincy
535 Jackson A D River Forest
477 Earngey Willard Rockford
415 Clarke G W Roseville
551 Egan D E St. Charles
456 Hazel J B Staunton
246 Van Meter E P Staunton
482 Horn A S Tampico
557 Allyn P R Waverly
541 Allyn W H Waverly
284 Jacobson Guy H Wayne City
549 Blatchford F W Winnetka
450 Adams J W Witt

INDIANA

87 Sechrest W C Bicknell
39 Brown K T Indianapolis
540 Newell G W Peru
70 Betsy F A., Union City
569 Jones J G Vincennes
447 Quillin L J Warsaw

IOWA

375 Mattison G O, Acron
304 Irwin Harry, Adel
343 Lang Corvis C Altoona
514 Guernsey I I Bloomfield
576 Alt R C, Cedar Rapids
542 Skinner, George Cedar Rapids
108 Howard, W A, Cherokee
501 Greenwood T M Circleville
267 Bartlett C I, Clinton
529 Bridgman H I, Columbia
225 Colden Thos A Creston
346 Macrae, J C, Creston
546 Lamb I H, Davenport
378 Schroeder, P H Davenport
345 Farwood F R, Des Moines
264 Elder J W Des Moines
384 Hunt J C Des Moines
439 Osborn J W Des Moines
521 Price A S Des Moines
361 Seward A B Des Moines
475 Linford W S Dixon
114 Parker H C Dubuque
445 Ruyewsitz J I Duncombe
223 Hoffman Wm I Gilbert
142 McAllister I J Hawarden
60 Parker F S Ida Grove
500 Van Epps C Iowa City
454 Brown W I Keokuk
116 Gilfillen Bruce I Keokuk
34 Hill I R Logan
357 Swift, I J Maquoketa
315 King Orin W Montezuma
137 Fulliam Ed B Muscatine
148 McClean Earll D Oskaloosa
443 Anthony W I Ottumwa
421 Clary W H Prescott
457 George A B, Red Oak
358 Christensen J Sioux City
367 Freer C I Sioux City
515 Caldwell J W Steamboat Rock
399 Kas T D Sutherland
525 Morganthaler O P Templeton
485 Pace A A Toledo
402 Parsons C D Vincent

KANSAS

[illegible]29 Mielke Charles H Alma
110 Young R C Arkansas City
196 Hickey Frederick R Chanute
233 Norman Wm G Cherryvale
295 Lewis Arthur J Council Grove
32 Reno W W Fort Riley
2 Ellis F C Frederick
548 Hood T A Garnett
364 Alford J S Independence
272 Boyce S F Iuka
318 Palmer Wm R Kansas City
[illegible]06 Burkett W C Kingman
570 Donnell J B Kinsby
369 Barnes R E Lawrence
363 Siever C M Manhattan
463 Engberg A McPherson
140 McCool Stanton A Neosho
313 Cole Charles W Norton
504 Hawthorn H B Palmer
509 Appleby C E Peabody
197 Lasche P G Richland Center
239 Brown L T Spearville
470 Adams C S St John
366 Lindsay M J, Topeka
333 Phares Willard A Wichita
365 Hawk C C Winfield
362 Jones H H Winfield

KENTUCKY

139 Price Carroll P Harrodsburg
398 Coolidge W L., Louisville

LOUISIANA

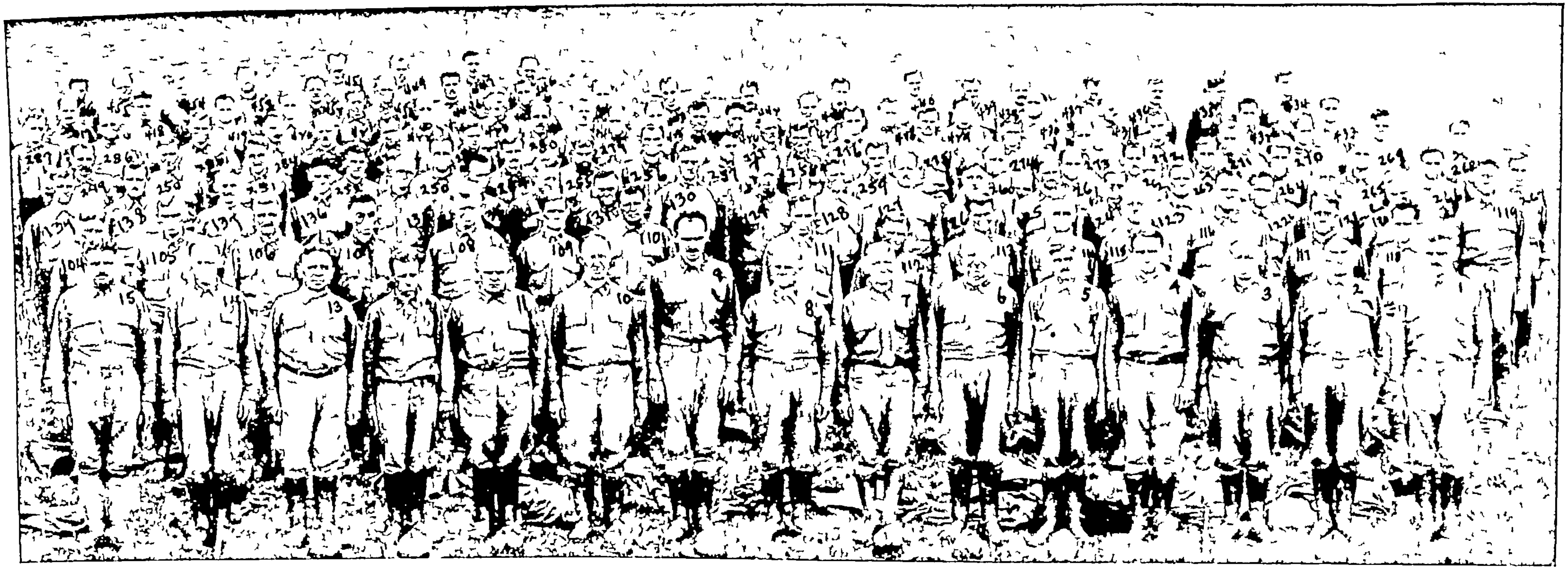
207 Tucker James A Baton Rouge
242 Furman Frances S Shreveport

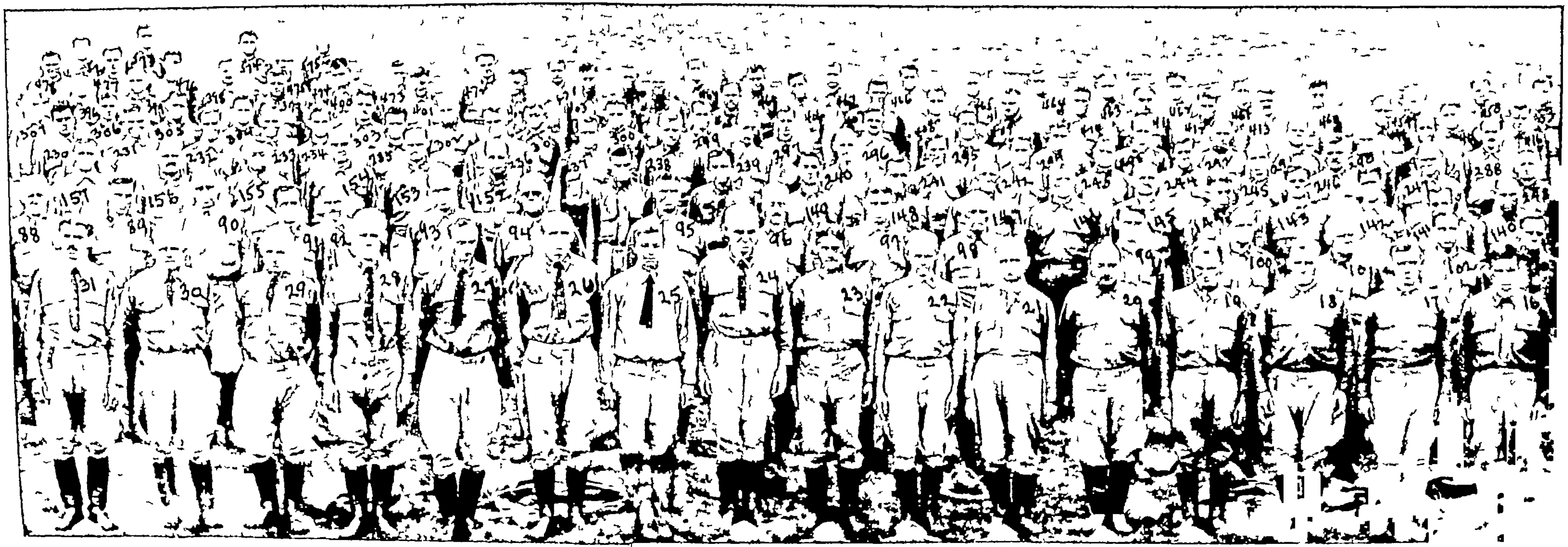
MAINE

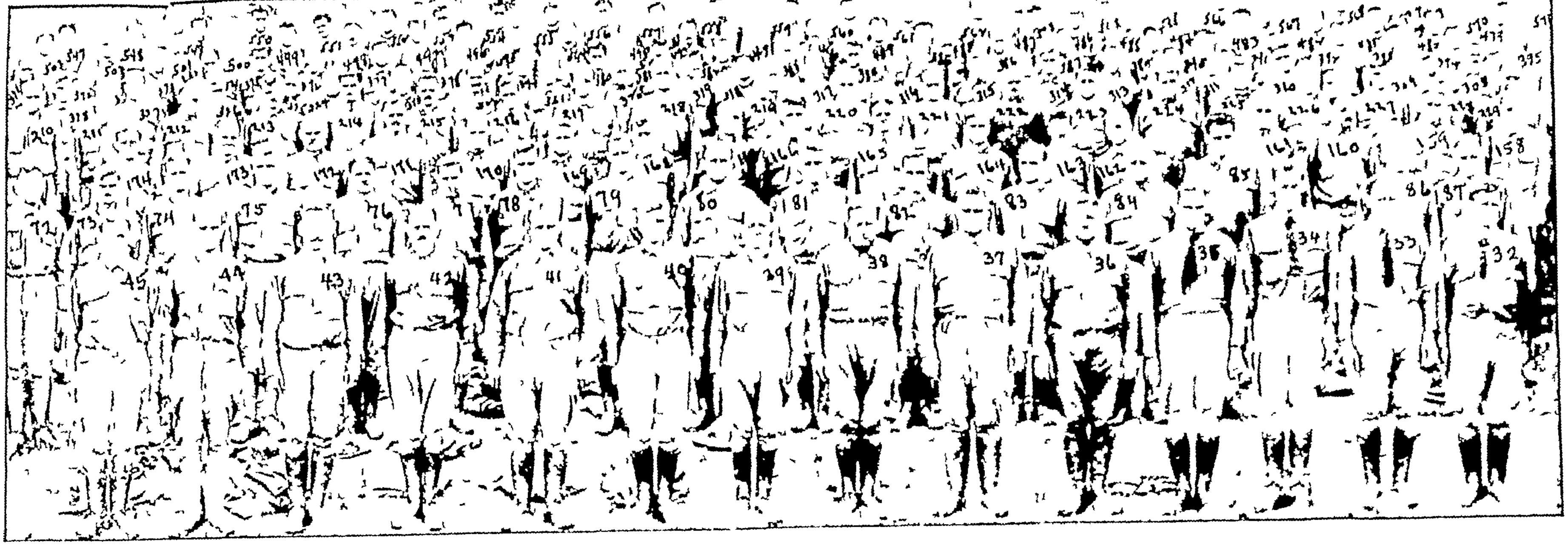
568 Fox J S Fort Preble

MARYLAND

27 Pillsbury H C Takoma Park



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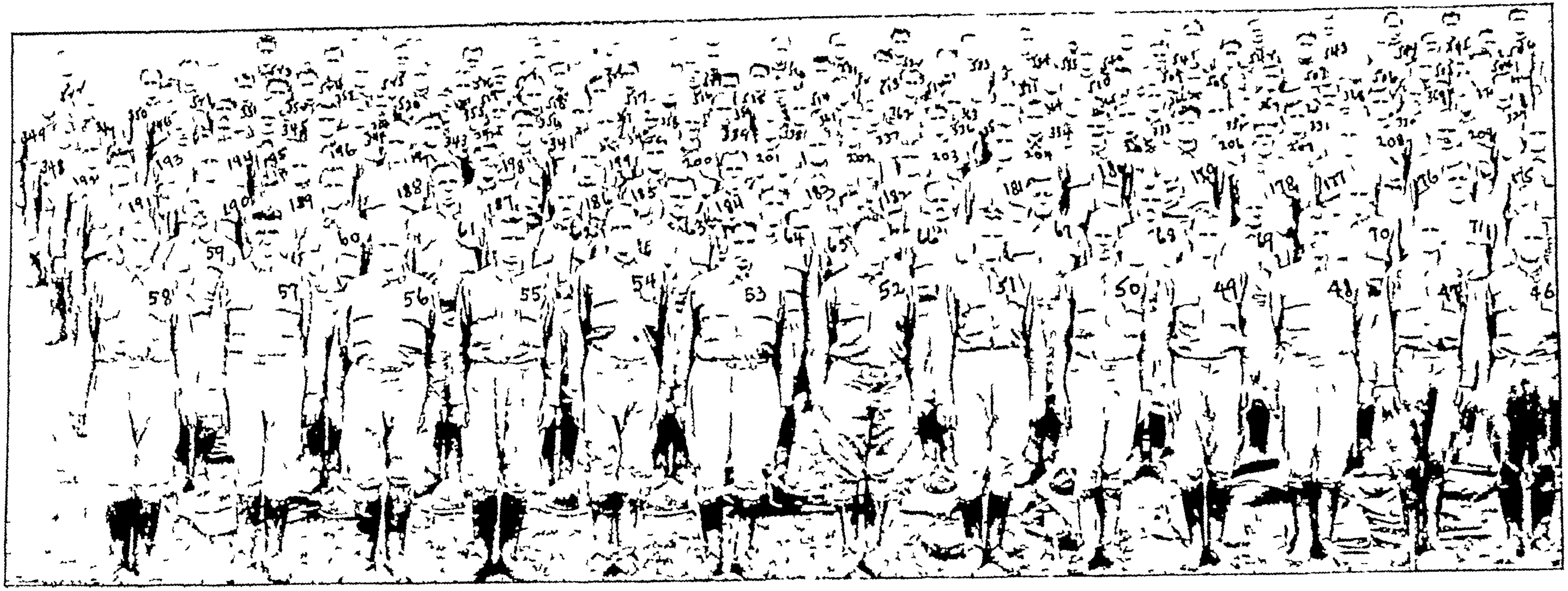
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MICHIGAN

292 Salisbury, Walter N, Ann Arbor
5 Walsh, J L, Iron River

MINNESOTA

76 Snyder, G W, Belle Plaine
441 Laney, R L, Brown Valley
146 Guittard, Virgil, Cloquet
360 Raiter, F W S, Cloquet
499 McHugh, R F, Coleraine
510 Robertson, J B, Cottonwood
303 L[illegible]s, Bert V, Delano
359 Andreas, J H, Duluth
340 Clark, Chester H, Duluth
128 King, Emil, Fulda
270 Elsey, J R, Glenwood
254 Ransom, Matthews L, Hancock
241 Bursheim, Peter J, Lake Benton
385 Liedloff, A, Mankato
249 Pratt, Chelsea C, Mankato
243 Heagerty, Wm B, Mazeppa
255 Bacon, Harry P, Milaca
290 Brown, Paul, Minneapolis
120 Butler, John, Minneapolis
381 Cruzen, R E, Minneapolis
281 Forsythe, Samuel T, Minneapolis
306 Graves, Floyd E, Minneapolis
63 Hengstler, H, Minneapolis
192 La Vake, R T, Minneapolis
180 McCusker, Chas F, Minneapolis
383 Noice, R R, Minneapolis
358 Rosenwald, J P, Minneapolis
94 Sessions, J C, Minneapolis
184 Shewbrooks, D M, Minneapolis
135 Thomas, Gilbert J, Minneapolis
10 Bickford, H G, Minn Lake
68 McKeon, J O, Montgomery
222 Schmidt, Geo I, Pipestone
83 Wilkinson, J C, Red Lake Falls
251 Bjerken, Fred N, Red Wing
52 Bell, L F, Rochester
149 Berkman, David, Rochester
82 Brodie, W D, St Paul
115 Cook, P B, St Paul
522 Meyerding, E A, St Paul
335 Middleton, Wm L, St Paul
90 Staley, J C, St Paul
248 White, Jonas S, St Paul
121 Daniels, J W, St. Peter
50 Workman, W G, Tracy
301 Kenyon, Paul E, Wadena
320 Bates, Bert V, Wheaton
520 Canfield, H E, Willmar
396 Schaefer, S, Winona
127 Manson, Frank, Worthington

MISSISSIPPI

109 Stephenson, R M, Lexington
437 Butler, H C, Moselle

MISSOURI

473 Albright, F C, Bronough
193 Jenkins, Chas E, Brookfield
332 Crank, Alexander C, Canton
208 Berry, John W, Cape Girardeau
531 Williams, P R, Cape Girardeau
324 Noyes, Guy L, Columbia
323 Ravenel, Mayzek P, Columbia
227 Griffith, Edgar M, Creighton
98 Johnson, J W, Hayti
123 Blankenship, E P, Houston
131 Abramopoulos, C, Kansas City
300 Beebe, Joseph A, Kansas City
386 Broyles, G H, Kansas City
511 Culbertson, W F, Kansas City
100 Gist, Wm L, Kansas City
211 Harrington, Walter W, Kansas City
12 Hecker, F H, Kansas City
190 Hill, Wm H, Kansas City
296 Hiller, Frank B, Kansas City
228 Hopkins, Chas B, Kansas City
410 Howell, J F, Kansas City
405 Hurwith, F R, Kansas City
126 La Rue, H M, Kansas City
350 Leonard, W H, Kansas City
407 Lyle, H, Kansas City
327 Lynch, John C, Kansas City
448 McCarthy, H E, Kansas City
167 Meade, R H, Kansas City
305 Miller, George C, Kansas City
49 Milne, L S, Kansas City
220 Powers, James W, Kansas City
331 Rogers, Fordyce B, Kansas City
307 Small, Walter L, Kansas City
37 Smith, D O, Kansas City
472 Smith, J H, Kansas City
287 Trachinos, Frank R, Kansas City
337 Valentine, H S, Kansas City
406 Wilhelm, D, Kansas City
257 Bogard, Edward, Lilbourn
395 Lewellen, C P, Louisiana
141 Toney, Les E, Piedmont
293 Coffey, Grundy C, Platte City
201 Yeagle, Roland P, Pleasant Hill
203 Insley, Herbert W, Rich Hill
193 Powers, Chas E, Rockville
210 McCall, Otis S, Rocky Comfort
212 Heibner, Eugene A, Sedalia
560 McGinnis, C S, Sedalia
166 Beckemeyer, W A, Sedalia
256 Box, Ernest M Springfield
138 Kizer, Philip, Springfield
329 Wills, Wm J, Springfield
299 Gossow, August A, St Charles
113 Brewer, W H, St James
19 Cook, E F, St Joseph
519 Corbin, S W, St Joseph
408 Schmidt, O A, St Joseph
153 Smith, A S J, St Joseph
143 Alexander, Robt B, S Louis
523 Axline, J T, St Louis
157 Bremser, H L, St Louis
464 Fry, W F, St Louis
480 Gibbs F L, St Louis
319 Gordon, Frank N, St Louis
92 Hawley, N J, St Louis
483 Heiple, E E, St Louis
176 Herrick, Harold C, St Louis
244 Heuman, Geo W, St Louis
276 Hobson, Dana A, St Louis
130 Hynes J C, St Louis
468 Kouri, M F, St Louis
349 Ude, Waldemar, St Louis
382 Unger, O L, St Louis
204 Woodruff, Fred E, St Louis
455 Shudde, O N, Sullivan
411 Belshe, G W, Trenton
351 Awry, S D, Troy
277 Lutman, Harry N, Versailles
291 Harrison, Alfred M, Warrensburg

MONTANA

136 Loring, Fred W, Butte
23 Wilking, S V, Butte
97 Hathaway, R E, Glendive
173 Irwin, J H, Great Falls
51 Bartlett, J D, Lewiston
491 Androps, S, Richey

NEBRASKA

85 Howard, W S, Alliance
553 Cline, E, Auburn
513 Metheny, E, Cairo
426 Legg, C E, Champion
168 Koefoot, T H, Columbus
112 Newparker, U R C, Columbus
164 Johnson, C C, Creighton
380 Reed, C O, Ewing
69 Redfield, W J, Grand Island
476 McCabe, F H, Holbrook
8 Garlinghouse, O L, Iola
374 Hibbard, P L, Kearney
117 Andrews, Henry S, Minden
175 Clements, Stanley C, Neligh
186 Hooper, Clifford, North Platte
342 Nade, John C, Oconto
322 Wallingsford, C C, Ogallala
503 Akers, W O, Omaha
172 Akin, H L, Omaha
534 Egen, L, Omaha
158 Eggers, H E, Omaha
160 Fricke, A A, Omaha
7 Gilbert, G R, Omaha
129 Johnson, A A, Omaha
84 Van Buren, I A, Omaha
353 Buis, John, Pender
416 Crawford, W H, Rushville
394 Ershine, E B, Wayne
427 Brenn, C P, Western
195 Wells, Harry L, West Point

NEVADA

188 Turner, Delos A, Goldfield

NEW JERSEY

265 Brady, C S, Union Hill

NEW MEXICO

423 Tinder, J W, Roswell

NEW YORK

428 Dwyer, J G, New York City
33 Richardson, W H, New York City

NORTH CAROLINA

555 Allen, B C, Henderson

NORTH DAKOTA

95 Hillis S J, Berthold
209 Brimi, Carl L, Cooperstown
302 Pryse, Roscoe C, Dawson
217 Nachtweg A P, Dickinson
479 Meland, O N, Grand Forks
444 Nickerson, B S, Mandan
147 Livingston, Jos W, Valley City
185 Strong, Thos J, Williston
67 Peedy, P G, Wilton

OHIO

154 Williams Curtis C, Niles
144 Syman, L L, Springfield

OKLAHOMA

391 Bradfield, S J, Bartlesville
462 McDonald, C R, Broken Bow
561 Clark, E W Granite
171 Janney J C, Lawton
312 Davenport, A E, Oklahoma City
187 Long, Robt D, Oklahoma City
389 Mraz, J J, Oklahoma City
390 Reed H L, Oklahoma City
25 Bolend, F J, Okla National Guard
371 Capps, J F, Tulsa

OREGON

156 Guillion, W F, Eugene
16 Abraham V R, Hood River
119 Everett E A, Lake View
125 Buck, George, Portland
42 Dammasch, F H, Portland
317 Grant, Daniel Portland
234 Kane, Edward J Portland
252 Palmer, Dowin L, Portland
311 Pargon, Joseph A, Portland
170 Rockey, Paul, Portland
348 Weatherbee J R, Portland
347 Houck, G E, Roseburg
356 Vincil, F H, Roseburg
86 Smith, W C, Salem

SOUTH DAKOTA

278 Field Louis M Aberdeen
461 Kaps, F O, Britton
179 Edward Geo, Bruce
226 Ashcroft F E, Deadwood
216 Duerr, John E, Groton
232 Fiksdal Mads J, Webster

TENNESSEE

54 Steele, J B, Chattanooga
122 Bundrandt, Wm C, Lawrenceburg

TEXAS

91 Doole T P, Eagle Lake
43 Sauer, P K, El Paso
31 Bispham, W N, Galveston
440 Morgan, E H, Granbury
524 Clark, F E, Jayton
336 Whisenant, J R, San Antonio

UTAH

253 Whalen, Walter E, Ogden
412 Jansen, I J, Salt Lake City
373 Jellison, R T, Salt Lake City
372 Van Scoyoc, J C, Salt Lake City

WASHINGTON

308 Brooks, Samuel G, Anacorta
219 Powell, I W, Bellingham
294 Knox John F, Elmira
334 Campbell, Daniel R Pullman
3/7 Beeler, G W, Seattle
341 Pontius, Nevin, Seattle
288 Simpson Austin V, Seattle
65 Smith, E H, Seattle
376 Durrant, J A, Snohomish
354 Byrne, J G, Spokane
191 Lambert, G E, Spokane
328 Nather, Fred B, Spokane
38 Newell, R J, Spokane
888 Pennock, W J, Spokane
66 Robinson, H H, Spokane
17 Sprowl, F S, Spokane
55 Whittaker F J, Spokane
206 Allen, Robert A, Tacoma
397 Gammon, C P, Tacoma
215 Laws, Clement E, Tacoma
151 Stryker, Ralph F, Wedgefield

WISCONSIN

471 Palmer, J A, Arcadia
309 Coleman, Harry N, Barrow
489 Driessel, S J, Barton
310 Lewis Paul J, Bloomington
494 Farrage, J, Breckinridge
552 Axley, A A, Butternut
572 Beeson, H B, Cornell
502 Hager, F J, Denmark
486 Bennett, L J, Fort Atkinson
40 Clark, W T, Fort Atkinson
231 Fritchen, Arthur F, Franksville
562 Rodecker, R C, Holcombe
469 Brunckhorst, F O, Hortonville
508 Burns H J, Hudson
488 Clarke, C C, Janesville
150 Van Kirk, Jas W, Janesville
414 Hanley, W, Kenosha
436 Nelson N O, Madison
467 Grannis, I V, Menomonie
449 Bading, G A, Milwaukee
387 Blumenthal R, Milwaukee
446 Bornstein, M, Milwaukee
433 Jenner, A G, Milwaukee
413 Mackedon T E, Milwaukee
370 Sargent, H I, Milwaukee
392 Shubert, F J, Milwaukee
15 Parmenter, E, Mondovi
497 Menefee, B F, Montgomery City
460 Johnson, J C, Ogdensburg
177 Provost A G, Oshkosh
512 Crane, M C, Osseo
533 Barnes, H T, Pewaukee
487 Fowler, P H, Plain
159 Borden, I R, Plainfield
96 Pretts, W I, Plattville
79 Richards, C W, Reedeburg
355 Schick, J, Rhinelander
379 Boyden, W L, Seymour
518 Bedford E W, Sheboygan
432 Dehmel R W A, South Germantown
517 Christensen J W Sparta
368 Erickson, H, Stanley
431 Keenan, H A, Stoughton
527 Huff F C, Sturgeon Bay
452 McEacheon, W A, Superior
528 Boland J E, Two Rivers
465 Converse, G L Webster
490 Tyvand J C, Whitehall

WYOMING

30 Coffin, J M, Fort Yellowstone

The Venereal Diseases

THE DIAGNOSIS AND TREATMENT OF SYPHILIS

Note—*This is the first of a series of four articles on the management of venereal diseases with special reference to military practice The articles have been prepared under the direction of the Surgeon-General by the Advisory Committee on Venereal Diseases, Dr William Allen Pusey, Chicago, chairman Dr Francis R Hagner, Washington, D C , Dr Grover W Wende, Buffalo, Dr Sigmund Pollitzer, New York and Dr Henry H Morton Brooklyn, with Lieut-Col F F Russell in charge of Infectious Diseases The series is published with the permission of the Surgeon-General, and will include the following Treatment of Syphilis, Chancroid, Balanitis Gangrenosa, Acute and Chronic Gonorrhea, with its complications The complete series will be issued in the form of a manual*—Ed

The care of syphilis in the new army will have to do chiefly with early syphilis, and in this article early syphilis is the condition under consideration, unless otherwise stated

CASE RECORDS

Great importance is attached to the keeping of systematic and full histories of venereal cases Such records will in time accumulate a very large and valuable fund of information on these diseases

In respect to syphilis, the army now requires the keeping of a syphilitic register This register will insure a much desired uniformity in the keeping of the records of syphilitic cases, and attention is called to it in order to emphasize its importance

IMPORTANCE OF EARLY DIAGNOSIS

The matter of prime importance in handling syphilis is to get it at the beginning of the infection The earlier it is treated the better are the prospects of cure, and the quicker the soldier can be made noncontagious and gotten back to duty It should be the constant effort to discover syphilis at the earliest possible time, if possible before the development of a positive Wassermann reaction

To this end, every sore, whether on the genitals or elsewhere, that is open to any suspicion of being a chancre, should be repeatedly examined for spirochetes No determining weight should be given to the so-called specific clinical characteristics of any lesion that might by any possibility be a chancre Experience has shown that the typical clinical characteristics of the chancre, aside from indolence — and this may be masked by another infection — are often lacking Any excoriations, papule, nodule, crack, herpetic or other erosion, no matter how small, may be an initial lesion of syphilis, and such lesions, as well as ulcers about the genitals — and elsewhere, if there is any reason to suspect them or if they are indolent and not readily to be accounted for — should be searched for spirochetes

Chancroids in particular should never be accepted as uncomplicated by syphilitic infection They are likely to have a double infection, and should always be zealously examined for *Spirochaetae pallidae* Sometimes, in spite of the most careful search, the spirochetes escape detection in chancroids For that reason, one can never be sure that a chancroid does not hide a chancre, patients with chancroid, therefore, require watching for the possibility of syphilis, and, when the spirochetes cannot be found, should always have weekly Wassermann tests for three or four weeks until the question of syphilis can be decided

Antiseptics, especially mercurials, render the finding of *Spirochaetae pallidae* difficult or impossible, and, because of this, it should be routine practice to apply no mercurial dressings, or better, no antiseptic dressings, to suspicious lesions until the necessary examinations to exclude *Spirochaetae pallidae* have been made If any such application has been made to a suspected lesion, the lesion should be thoroughly irrigated with physiologic sodium chlorid solution, and a wet dressing of this solution applied for twelve hours or more before examining for spirochetes

In order to aid in discovering the initial lesion at the earliest moment, soldiers who have been exposed should be inspected at intervals of a few days for at least three weeks, and also instructed to be themselves on the watch for suspicious lesions

EXAMINATION FOR SPIROCHAETA PALLIDA, AND DIAGNOSIS

To obtain the *Spirochaetae pallidae* for examination, two procedures are of value In obtaining them directly from the lesion, the surface should be wiped with gauze wet with physiologic sodium chlorid solution, to remove saprophytic organisms, especially the *Spirochaeta refringens* The rubbing should leave a clean oozing surface, not bleeding Light curettement may be necessary in some cases Moderate squeezing of the lesion will then cause an exudation of lymph from the deeper portions of the tissues A drop of this lymph is then touched to a cover-glass and placed on a slide, or the fluid may be collected in a capillary pipet It may be preserved for a few hours by sealing the pipet, or the specimen on the slide may be ringed with paraffin or petrolatum and kept on ice for variable periods up to twelve hours or longer Delay impairs the validity of the findings, however, and multiplies uncertainties, so that examination should be made at once

A valuable method, which relieves the observer of much of the responsibility for differential diagnosis of the organism, is glandular aspiration This can be done on prominent nodes in the satellite adenopathy accompanying the primary lesion It can also be performed on the indurated base of a suspected chancre A sterile glass syringe, of 1 c c capacity, fitted with an ordinary stout hypodermic syringe needle, an inch or so in length, is sufficient The skin over the gland is painted with iodin, and the gland palpated and fixed between the thumb and forefinger of the left hand The needle is plunged through the skin into the gland, the penetration of the capsule being indicated by the moving of the gland under the finger when the position of the syringe is changed The gland is then held firmly while the needle is manipulated enough to macerate the tissue immediately around the point Aspiration will draw a drop or two of tissue juice into the needle and barrel The fluid thus obtained is often rich in *Spirochaetae pallidae* The method is not especially painful, and is easily borne by the average patient

The *Spirochaeta pallida*, as obtained for study by these methods, has a morphology usually easily recognized by the experienced observer It is a regular spiral organism, of from 6 to 15 microns in length, with from 3 to 26 turns The average length is about twice that of a red blood cell, and the usual number of turns is from 10 to 20 It is rather slow moving, which is a distinctive characteristic A movement in the direction of the long axis and a rotating movement are most commonly observed The organism retains its clear-cut, regular spiral turns exceptionally well, even at rest — another distinctive characteristic Long forms bent in the middle are occasionally seen

From *Spirochaeta refringens,* if this is not eliminated by proper cleansing, the *Spirochaeta pallida* is distinguished by the fact that *Spirochaeta refringens* is obviously coarser, and the turns are fewer and less regular *Spirochaeta refringens* does not keep its corkscrew shape so well as *Spirochaeta pallida* when at rest, and when in motion moves much more rapidly than the *Spirochaeta pallida* *Spirochaeta dentium,* seen in mouth preparations, is much more minute than the *Spirochaeta pallida* Fibrin spirals have been mistaken for syphilitic spirochetes by inexperienced observers In general it may be said that while the recognition of the organism of syphilis is not an affair for the tyro, a moderate amount of experience on the part of the examiner, coupled with the presence of numerous organisms of the above described type in a given preparation made under favorable conditions, is sufficient for a diagnosis of syphilis and the institution of appropriate treatment Failure to find them, however, is no evidence that the lesion is not syphilis

In all suspected cases, Wassermann tests should be made It should be made a general rule that the first finding of a positive Wassermann reaction should immediately be confirmed by a second, but it is not necessary to delay beginning treatment until the second report is received For the first ten days after the appearance of the chancre, the Wassermann reaction is usually negative It is at this critical period that the establishment of the diagnosis of syphilis by demonstration of the specific spirochetes is of such importance, because it enables us to begin treatment while the infection is still relatively localized and can usually be aborted by thorough treatment In suspected chancres in which spirochetes cannot be found, Wassermann tests should be made at intervals of a week, for a month, before it is decided finally that the case is not syphilis In cases in which the spirochetes are found, a Wassermann test should be made at the outset, and if it is not positive, should be repeated at weekly intervals for the first few weeks to see if, in spite of treatment, it becomes positive Further Wassermann tests should be made at about monthly intervals

In no case should specific treatment be started until a positive diagnosis of syphilis has been made

TREATMENT OF THE CHANCRE

Excision of the chancre is a procedure which theoretically should be useful, on the ground that it removes the important focus of infection And when the location of the chancre is such that its excision will not cause deformity, surgical excision may be done, but excision of the chancre does not abort syphilis The excised chancre should be preserved and sent for laboratory examination Until the search for spirochetes is ended, the chancre should be treated only by cleansing with saline solution and covering with a compress wet with the same solution As soon as spirochetes are demonstrated, if the chancre is not excised, it should receive an inunction of 33 per cent calomel ointment twice daily for a week, it should be kept clean and protected by a calomel ointment or some bland protecting dressing

SYSTEMIC TREATMENT

In the presence of early syphilis, treatment should be immediately started and vigorously pushed It should be with both salvarsan and mercury Before beginning there should be a preliminary survey of the patient's physical condition Patients with acute febrile diseases, or with diseases of the liver, kidney or vascular system — when they are nonsyphilitic in origin — should be given salvarsan with caution

SALVARSAN

There is agreement among syphilographers that the most effective time for producing radical results with salvarsan is in the first few weeks of syphilis — best before the Wassermann test becomes positive — and that salvarsan should be pushed at this time But there is considerable difference of opinion as to how vigorously it should be pushed

A safe vigorous course of salvarsan between extremes is advised Such a course is a dose of from 0 4 to 0 6 gm of salvarsan given at five day intervals until three doses are taken, after that at intervals of a week for five more doses, making a total of eight doses of salvarsan in a little more than six weeks

It is possible that in cases seen before the Wassermann test has become positive, one such course of salvarsan combined with mercury may cure But this is not safe to assume, and, in the light of our past knowledge of syphilis, it is advised even in these cases to repeat the course of salvarsan and mercury treatment at least once after a rest period of from six to eight weeks Such patients should be subsequently watched for a year with monthly Wassermann tests and treated should any evidence of syphilis be discovered

In all cases seen after the Wassermann test has become positive the first course of treatment should be followed by a second after six to eight weeks' rest And it is safest to give at least a third similar course after an interval of two months even in the most promising of cases

In all those cases in which a positive Wassermann test or any other evidence of syphilis remains, further courses of salvarsan and mercury should be given at intervals similar to the foregoing, the persistence in treatment to be determined by the findings in the individual case

In place of salvarsan, neosalvarsan can be used in 50 per cent larger doses It may be somewhat less effective, but the difference is not sufficient to allow of dogmatic statements on this point

The word "salvarsan" is used here for convenience, and is intended to cover the same product made in the United States and elsewhere under different trade names Experience has shown that those furnished by responsible manufacturers are as effective as the original

It may be repeated that the use of salvarsan is to be combined with that of mercury in the attempt at cure of syphilis, and that reliance is not to be placed on salvarsan alone

PREPARATION AND CARE OF PATIENT

The urine should be examined before each injection of salvarsan Salvarsan should be given with the patient's stomach empty, or nearly so The treatments are best given at noon or in the early afternoon, the patient omitting lunch He should remain quiet for the rest of the day — best in bed — and should take no food until the next morning

SALVARSAN REACTIONS

Reactions after salvarsan are rarely of consequence Many patients experience a degree of nausea six or seven hours after the injection, and occasionally they vomit, sometimes the vomiting being severe and prolonged These reactions do not necessitate the abandonment of salvarsan, but they indicate that the further use of the drug should be guarded

Occasionally immediate acute anaphylactoid reaction such as edema and syncope, occur These demand the intramuscular injection of from 5 to 10 minims of the standard 1 1,000 solution of epinephrin This solution and a sterile hypodermic syringe should always be at hand for this emergency In patients subject to such reactions, these occurrences may be prevented by the administration of epinephrin from ten to fifteen minutes before the injection of salvarsan

In rare cases, patients respond after from twelve to thirty-six hours with a more or less pruritic erythema This may go on if salvarsan is pushed further, to a general exfoliative dermatitis with nephritis and dangerous intoxication, and is an indication for conservatism in the further use of the drug

It is not uncommon to find a trace of albumin and a few casts in the next morning's urine after an injection of salvarsan This is not a contraindication to the further use of salvarsan unless the albumin is present in considerable quantity and there are more than half a dozen casts to the slide

The occasional ocular and auditory and other nerve symptoms in syphilitic patients are not manifestations of salvarsan poisoning, but of syphilitic lesions, and call for further use of salvarsan

In general, the careful man is likely to attach undue importance to minor symptoms arising in the course of salvarsan administrations, and to be influenced too readily by them to give up its use in the particular case On the other hand, a reasonable caution in the face of symptomatic warnings of salvarsan intoxication demands care in its further use in such cases

TECHNIC OF SALVARSAN ADMINISTRATION

The fundamental principle of administering any form of salvarsan is a rigid asepsis, and only extreme conditions justify its administration when this is not obtainable The apparatus should be boiled twenty minutes in distilled water It is important that freshly distilled water be used for salvarsan solution Twenty-five c c of water per decigram of salvarsan is a safe dilution If the ampule has been immersed in mercuric chlorid, it must be carefully wiped before it is opened

The drug is first dissolved in about 50 c c of *hot* water If the water is hot, it dissolves easily This yields a strongly acid solution, which must be neutralized and diluted before injection Neutralization is accomplished after all the salvarsan is dissolved by a 15 per cent freshly prepared solution of sodium hydroxid, which should be added drop by drop Salvarsan is precipitated from the solution by the alkali, but redissolves as soon as the suspension becomes slightly alkaline The point at which this occurs can be gaged with sufficient accuracy if the sodium hydroxid is added carefully and mixed after each drop or two Since salvarsan oxidizes easily, it is undesirable to shake the material too vigorously while in preparation As soon as the salvarsan has redissolved, yielding a clear yellow solution, it may be filtered through wet sterile cotton in a funnel directly into a graduated container, when hot or cold water is added to the proper dilution and to approximately body temperature Care must be taken to fill the tube attached to the container with water and to expel all air bubbles before the salvarsan solution is filtered into the container

In the event that the salvarsan precipitates somewhat on dilution, it may be redissolved by another drop or two of the sodium hydroxid If the preparation has been made too strongly alkaline, a drop of dilute hydrochloric acid may be added and the neutralization repeated The drug should be administered promptly after preparation, and no more than enough for use on the patients to be treated at the time should be prepared

The technic of injection of the solution is comparatively simple, and the older custom of making an incision to find the vein, with its resultant scarring, has been abandoned by skilful operators A variety of needles has been proposed, but the Schreiber 18-gage with thumb guard and a proper adapter, or even a plain needle, will answer all purposes In difficult cases a finer needle may make it much easier to get in the vein The skin over the field of operation, preferably in the region of the large cubital veins, is sterilized as for a surgical procedure, but if tincture of iodin is employed it is desirable to remove it with alcohol in order that the vein may be more easily seen The injection should be given with the patient lying down and the veins distended by encircling the arm with a tourniquet

In nervous patients, local anesthesia may be used to advantage The needle is pushed directly through the skin over or to one side of the vein and then introduced into the vein As soon as the blood returns freely through the needle, the adapter attached to the tube of the container is fitted to the shoulder of the needle, the tourniquet is released, and the injection begun by elevating the container about two feet As a rule assistance is desirable, since the operator is occupied by keeping the needle in position in the vein Failure to enter the vein is apparent by this method, before injection is begun, through the imperfect flow of blood through the needle The sterile water contained in the tube allows sufficient warning of the infiltration of the tissues before the salvarsan solution reaches the needle point Various forms of apparatus which inject saline solution as a test before beginning the injection of the salvarsan are not essential and are often complicated A glass telltale in the rubber tube permits the operator to watch the progress of the injection When the injection is completed, the lowering of the container below the level of the arm before the needle is withdrawn will aspirate a small amount of blood from the vein and prevent the escape of solution into the tissues Only experienced operators, in this procedure, as in any other of a surgical nature, should attempt difficult cases

Infiltrates, if they occur, are usually trivial, provided the operator has been on his guard The escape of salvarsan into the subcutaneous tissues is indicated by a burning sensation, which the patient should be warned to report The reaction which ensues when salvarsan is injected around the vein is inflammatory, with induration and infiltration, and may, if severe, progress to a slough Salvarsan infiltrates should be treated by wet dressings, icebag, and, after inflammatory symptoms subside, by massage and passive movement An alarming degree of involvement may subside with practically no damage after several weeks or months Thrombosis of the vein is an infrequent complication if the drug has been properly diluted, and should be treated on general indications

THE TECHNIC OF NEOSALVARSAN ADMINISTRATION

The original administration of neosalvarsan, in dilutions similar to those used with salvarsan, has been greatly simplified by the injection of the dose in concentrated solution In this procedure, the dose of neosalvarsan is dissolved in 10 c c of freshly distilled sterile water at room temperature — *not hot water* The solution is drawn up into an all-glass syringe and administered as an intravenous injection after the usual preparations The method is rapid and extremely convenient, and its applicability to difficult cases is apparent

The solution of neosalvarsan being already neutral, it requires no addition of sodium hydroxid Care must be taken to avoid infiltrates with the concentrated solution, but in general infiltrates with neosalvarsan are apt to be less serious than those with salvarsan

MERCURY

For the cure of syphilis, salvarsan and mercury should be combined, and at the same time with each course of salvarsan a vigorous course of mercury should be given This should begin at the same time or within a few days after the first dose of salvarsan

A course of mercury should consist of six or eight weekly injections of an insoluble salt, or of thirty-five to forty-five daily inunctions of mercurial ointment The administration of mercury either by inunction or by intramuscular injection is effective, and in the selection of either method one may be properly influenced by considerations of convenience and practicability

INUNCTIONS

If inunctions are used, it is necessary to see that they are properly performed Patients cannot be trusted to give themselves inunctions, but they can very readily do it for each other by sitting one behind another and having each man rub the back of the man in front of him From 4 to 8 gm of mercurial ointment may be used for a daily inunction It is desirable before the inunction to wipe off the area to be rubbed with alcohol or to wash it lightly with soap and water and dry The ointment should be rubbed in slowly and gently with the palmar surface for twenty or thirty minutes, or until the ointment is practically absorbed Any excess should be allowed to remain on the skin After six inunctions, a day should be skipped and the patient allowed a bath

In giving inunctions, hairy surfaces and the thin skin of joints should be avoided, and the same area should not be used often enough to produce dermatitis The two sides of the back furnish the most tolerant areas The sides of the abdomen and of the chest, and the inner surfaces of the thighs, the arms and the forearms may all be used

INJECTIONS

For injections, the preferable insoluble preparations are mercuric salicylate or calomel in oil, or metallic mercury in the form of gray oil Perhaps the best proportion for the salicylate or calomel suspension is 20 gm (weight) in sterile olive oil or thin liquid petrolatum, enough to make 100 c c (volume) A good formula for mercurial oil (gray oil) is redistilled mercury, 20 gm , chlorbutanol, 2 gm , anhydrous lanolin, 30 c c , and liquid petrolatum, enough to make 100 c c

The intramuscular dose of calomel, salicylate and metallic mercury are the same These three preparations, being of the same strength, have the advantage of having the same dose The average dose of either, for an adult man, is 5 minims (0 06 gm , 1 grain) weekly, by graduations the dose may be increased to 0 12 gm (2 grains) weekly, or with caution even higher

The curative action of the injection of soluble salts of mercury is perhaps less than that of the insoluble However, they are free from the dangers of cumulative effect which are inherent in the insoluble salts, and in emergencies, when there is need to get prompt, certain and vigorous effect of mercury, they are of great value Mercuric chlorid or mercuric succinimid are the most useful soluble salts for injections A good preparation is 1 per cent mercuric chlorid or 1 per cent mercuric succinimid with 1 per cent sodium chlorid by weight in distilled water The average dose is 25 minims (0 015 gm , ¼ grain) into the muscle of the buttock every second day

TECHNIC OF INJECTIONS

For intramuscular injection, a syringe such as the all-glass Luer hypodermic syringe with a 1½ inch, 20 or 22 gage needle is used The needle should have a slip shoulder to permit of its easy detachment from the syringe Sterilization of the skin with tincture of iodin is sufficient, emulsions once sterilized will remain so with reasonable care in their handling In military service the syringe and needle should be sterilized by boiling, or by liquid phenol and the water or phenol removed by filling the syringe first with alcohol and then with ether

The site of the injections is usually in the upper outer quadrant of the buttock, care being taken to avoid the region of the sciatic nerve or the structures about the hip joint They can also be well given in the upper inner quadrant of the buttocks Injections are made alternately into each buttock

The needle with the syringe empty should be introduced to its full length, and the syringe then detached and filled with the necessary dose This introduction of any empty needle is a safeguard against making an injection into a vein If the dry needle should be in a vein, on detaching the syringe, blood would well up through it, if the needle remains free from blood, as is nearly always the case, there is reasonable security against introduction into a vein

In general, in order to prevent leakage of the emulsion, it is desirable to introduce the needle on a slight slant in the tissue This may be accomplished by drawing downward on the skin of the buttock, which permits a valve action as soon as the needle is withdrawn and the hand released The injection if made slowly is practically painless The development of infiltrates and nodules of any considerable size, or in any number, during a course of injections, is either a reflection on the operator's technic or shows the case to be unadapted to this form of treatment Each of these nodules represents encapsulated mercury, and materially increases the danger of cumulative action Daily massage by the patient will usually reduce them in a short time If their formation cannot be prevented, the patient should be put on a rest period until they disappear

CARE OF PATIENT WHILE TAKING MERCURY

Mercury as well as salvarsan throws a burden on the kidneys, and patients under intensive treatment with mercury and salvarsan should have the renal functions carefully watched An examination of the urine for albumin and casts should be made weekly, and the development of definite nephritis during a course of treatment is an indication to stop Treatment may be undertaken again after the nephritis has disappeared, but must be less vigorous than before and must be carefully watched

Care of the mouth is a part of the general care which a syphilitic should have Dental troubles should be looked after and the patient instructed in the care of the teeth A dentifrice should be used, and it is a good plan to have the patients as a routine use an oxidizing mouth wash such as a one-half saturated potassium chlorate solution, or a diluted solution of hydrogen peroxid When the gums are soft or unhealthy, a good astringent application is tincture of kino, one part, and tincture of myrrh, two parts, to be painted on two or three times daily, after brushing the teeth

SALIVATION

If salivation should occur, the mouth should be cleaned at short intervals by washing with hydrogen peroxid solution or half saturated potassium chlorate solution Compound solution of sodium borate (Dobell's solution) may also be used, and, while less effective, it has the advantage of being soothing Pledgets of cotton or gauze moistened with boric acid solutions placed between cheeks and teeth give comfort and get rid of exudate Atropin is useful, given to the point of reducing salivary secretion If the patient has been using inunctions, he should, in order to get rid of mercury in the skin, be greased with an oil and then well washed with soap and water and put in fresh clothes He should have a soft, nutritious diet, be protected from exertions, and given the care for exhausting illness In particular, he should be given an abundance of water

ESTIMATING THE COURSE OF CASES

During the early course of syphilis, a Wassermann test should be made at monthly intervals, and after it has apparently become permanently negative, it should still be repeated at intervals of two or three months for at least a year It should be remembered that the Wassermann test is not likely to be positive for the first ten days of the chancre After it becomes positive, the obtaining of a single subsequent negative reaction means little, it must remain negative over a period of months to justify the conclusion that it is permanently negative

In estimating the effect of treatment on syphilis, not only the disappearance of specific clinical symptoms and of the positive Wassermann reaction should be considered, but the patient's general well-being as well In zeal to sterilize a patient of spirochetes the effect of the treatment itself on the patient should not be overlooked, and treatment should not be pushed beyond the point at which the patient is able to tolerate it without distinct lowering of his general physical tone

A patient may be regarded as free from the necessity for further observations or treatment who, under observation and with Wassermann tests at intervals of two months, has remained free from all evidence of syphilis for a year

There is room for difference of opinion as to the advisability of spinal puncture or a provocative injection of salvarsan with a subsequent Wassermann test in every case before discharge Conservative practice reserves the use of these diagnostic measures to cases in which there are special indications

LATE SYPHILIS

The late manifestations of syphilis in the Army will be less common than the early Gummatous lesions in the skin or bones or elsewhere, which may be cured without leaving any serious damage to the body, do not constitute a difficult clinical problem In old cases of this sort, there is not the need for the intensive treatment administered in early cases These patients should have mercury and potassium or sodium iodid until their lesions are cured How much farther treatment should be carried is a matter for judgment in the individual case The deep lesions of late syphilis — syphilis of the viscera, of the vascular system, especially of the heart or aorta, and of the central nervous system — indicate such serious impairment of the body that these patients will not be able to endure the strain of military life in the field If the lesions in such cases can be controlled, it may be practicable to find duties for which the patients are still fit, otherwise, they should be considered for discharge

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION W A PUCKNER, SECRETARY

THIOCOL-ROCHE — Potassium Guaiacol-Sulphonate — $C_6H_3(OH)(OCH_3)(SO_3K)$, 1 2 6—The potassium salt of orthoguaiacol sulphonic acid, $C_6H_3(OH)(OCH_3)(SO_3H)$ 1 2 6

Actions and Uses—Thiocol-Roche acts as a sedative expectorant It has the advantage over guaiacol in that it is comparatively tasteless does not disturb digestion and is nontoxic In thiocol-Roche the guaiacol is so firmly bound that almost none is split off when the salt is administered, and it is a question if its action is due to small quantities of guaiacol set free or to the guaiacol-sulphonic group as a whole

It is claimed that thiocol-Roche is useful in the treatment of diseases of the respiratory tract, incipient tuberculosis and certain diarrheas

Dosage—From 0 3 to 1 3 Gm (5 to 20 grains), dissolved in water or in syrup, or in the form of tablets

Manufactured by F Hoffmann La Roche and Co Basel, Switzerland (The Hoffman La Roche Chemical Works New York) U S patent No 650 218 expired

Syrup Thiocol Roche—A syrup containing thiocol Roche 10.5 Gm in 100 Cc. (6 grains in a fluidrachm)

Thiocol Roche Tablets, 5 grains—Each tablet contains thiocol Roche 0 3 Gm (5 grains)

Thiocol Roche is prepared by sulphonating guaiacol at a temperature not exceeding 70 to 80 C with concentrated sulphuric acid converting the guaiacol sulphonic acid produced into the barium salt, and this by decomposition with potassium sulphate into the potassium guaiacol sulphonate.

Thiocol Roche is a colorless crystalline powder neutral or faintly alkaline odorless and having a faint bitter taste. Thiocol Roche is soluble in water slightly soluble in ordinary alcohol but insoluble in absolute alcohol and in ether or oils.

If to an aqueous solution of thiocol Roche barium chloride solution is added no precipitate is produced ferric chloride produces an intense violet blue color which disappears on the addition of ammonia or of concentrated solution of alkali chlorides or sulphates

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SATURDAY, SEPTEMBER 15, 1917

CIVILIZATION AND DETERIORATION

Nowadays, when one hears so much about the crimes of civilization as an almost unspeakable and inconceivable concomitant of the warfare of the assumedly intellectual nations, it may be informing, though not inspiring, to turn to the silent crimes of peaceful civilization. Maccaughey,[1] of the College of Hawaii at Honolulu, has given a depressing picture of the deterioration of the early Hawaiians, one of the finest physical types native in the Pacific and comparing favorably with the best from any part of the world.

In order to understand what the debasing influence of intercourse with the assumedly higher Caucasian peoples has wrought in undermining, with astonishing speed, the constitution of a once physically splendid race, it is essential to recall the Hawaiian of only a few generations ago. The details of bodily superiority need not be rehearsed here, but certain items of the Hawaiian customs and hygiene are worth inquiring about. The popular belief in the bad effects of inbreeding seems to be negatived by the physical superiority of the chiefs, who were often closely intermarried within their class. As is well known in the science of animal breeding, when dominant characters are desirable ones, it is an advantage to have them accentuated by inbreeding. The danger in this practice lies in the possible existence of inferior dominant features that are transmissible rather than in any inherent defect or danger in the intermarriage itself.

In speaking of the evidently healthy integument of the Hawaiians, Maccaughey says that in the ancient regime the better class of natives kept their skins in excellent condition through daily baths in the sea and in fresh water and by oiling the body with coconut oil. The effectiveness of such hydrotherapy is well appreciated today, but we fail to realize the unquestionable merit in the inunctions with oil that undoubtedly confer a suppleness and pliancy to the skin quite contrary to the extreme detergent action of the water bath. It is not without hygienic significance that the skin is normally lubricated by a sebaceous secretion which the bath tends to remove, often to a degree no longer compatible with a perfect epidermis. The value of massage was duly appreciated by the chiefs and women of rank among the Hawaiians, for they employed an exceedingly thorough and elaborate system which aided to keep skin and bodies in perfect condition.

The nervous temperament that is a by-product of our higher civilization and is characteristically American, leaves its mark in the muscular activities of our people. In emphasizing the beautiful muscular development and the absence of nervousness among the ancient Hawaiians, Maccaughey points out that this brings about an ease and grace with which the limbs are habitually moved. The gait of the men and women alike was almost invariably graceful, smooth and dignified, we are told. When we bear in mind the "nervous, jerky motions" that characterize so many moderns, it may well be asked whether a return to the older simplicity of life with its admirable poise is not worth debating in some respects. Perhaps the charm of some of the native dances with their graceful rhythms lies in the suggestion of a serene life devoid of civilization's stirring excitements.

To a people remarkably free from disease and disfigurement, the inroad of members of a different civilization has brought disease, drunkenness and debasing influences that have undermined the constitution of the race with astonishing speed. The primitive Hawaiian, with fine physical and mental traits of the greatest promise, is disappearing, Maccaughey writes, and in a few years will have vanished forever. Is this the civilization of peace?

SPECIAL PREPARATIONS FOR THE MANAGEMENT OF HEAD INJURIES IN THE WAR

It is reported that approximately 20 per cent. of the bed capacity of the base hospitals in the war zone is occupied with cases classified as surgery of the head. This can readily be believed since warfare has become almost wholly of the trench variety, in which the head is particularly exposed and for which reason all the armies have adopted the steel helmet instead of the ordinary head-gear. Even in time of peace 12 to 15 per cent. of the conditions treated in an army general hospital are classified as eye, ear, nose and throat cases. This does not include the cases requiring brain and oral surgery. In view of the number of these and their importance, as shown by the experience of our allies, the Surgeon-General of our Army is making special preparations to take care of these cases according to the best and most recent methods. These include the provision of a specially trained personnel and adequate equipment near the front. In order to work out this program the Surgeon-General has created a spe-eral section on Surgery of the Head, including divisions for the special organs — eye, ear, nose and throat, brain, mouth and teeth This section, with headquarters in the Surgeon-General's Office, is under the general direction of Lieut -Col T C Lyster, and is divided into four divisions — ophthalmology, otolaryngology, brain and oral and plastic surgery Associated with Colonel Lyster as advisory committee are members of the Medical Reserve Corps representing the various specialties each of whom is a member of a subcommittee of the General Medical Board of the Council of National Defense[1] Through this advisory committee and its subcommittees, qualified men throughout the country who have been commissioned in the Medical Reserve Corps have been secured for service in their specialties

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[1] Maccaughey, V.: The Physique of the Ancient Hawaiians, Scient. Month., 1917, 5, 166.

In order that this work shall be done in the most effective manner it is planned to have one hospital established in France which shall be devoted entirely to head injuries To this hospital all such cases are to be evacuated when deemed to be to the best interest of the service and of the wounded soldier This hospital is to have a capacity of perhaps one thousand beds, and is to be accessible — in reality an adjunct — to the various base hospitals The institution is to be complete with laboratory Roentgen-ray apparatus, shops and a mechanical division for reconstructive apparatus It is hoped to follow the steps of the English Army and to furnish the men with spectacles from a standard lens grinding department

For years, the type of specialized and expert service here described has been available in civil life, it is now to become a practical part of the practice of military medicine and surgery It means not only the saving of lives but also better care of these most dangerous and disfiguring of all wounds of war

SOME UNDERAPPRECIATED MENACES OF THE ORGANIZATION OF ARMY RECRUITS

The concentration of large numbers of men in the new army cantonments has suddenly furnished novel and hitherto little appreciated problems of medical import The proximity of so many persons from many parts of the country and widely different communities means opportunities for the transmission of contagion on a large scale, and compels the institution of rigorous means of combating it Diseases that ordinarily occasion comparatively little worry to the sanitary officer, because they occur in isolated instances in which effective control can be instituted as soon as the danger is recognized, assume a more threatening aspect when they make their appearance in the midst of people who are crowded together

Surgeon McMullen[1] of the Public Health Service has recently pointed out a danger of this sort incident to the enlistment of recruits affected with trachoma Although the prevalence of this disease has been so great in the armies of past European wars that trachoma was at one time termed "military ophthalmia" and believed to be confined to soldiers, it is today recognized as having a far more universal significance Nevertheless few physicians realize the widespread distribution of trachoma in the United States Only a few years ago the Indians of this country were found to be almost universally affected Indeed, so prevalent and extensive is the infection in some sections of the United States that the Public Health Service has established and maintains in those sections six ophthalmic hospitals for the treatment of trachoma, which is classed by the government as a dangerous contagious disease According to McMullen,[1] these hospitals have now been in operation for several years and, during the past year, a total of 18 530 patients were treated, 1,880 patients were admitted to the hospitals, and 1,687 operations were performed Trachoma thus appears as a public health menace to which the new conditions established by our National Army must become adjusted before the disease establishes many foci The schools may be invaded, now that the summer vacation is past Fortunately the malady is a curable one Physicians who seldom if ever have had occasion in the routine of their past experience to come in contact with trachoma should familiarize themselves with the clinical symptoms as an act of preparedness for an undesired possibility

Casual observations made by Dr Stiles[2] of the Public Health Service have emphasized even more strongly than before the importance of providing against the spread of infection with intestinal parasites These are more insidious because the damage or deterioration which they may cause is not so easily recognized by a physical sign or symptom in the patient afflicted Stiles reports that in a total of seventy-five military recruits recently examined by him at a government reservation, forty-seven men (63 per cent) showed hookworm infection, three *Ascaris lumbricoides,* one *Hymenolepis nana*, and one a heavy infection with *Strongyloides,* two recruits had double infections, twenty-five examinations were negative He points out that a failure to treat the hookworm cases and to eliminate at least the severe infections of *Strongyloides* will undoubtedly result in unjust and preventable punishment for offenses due to remediable conditions, considerable physical and mental inefficiency, an unnecessarily high daily "sick call," and premature and preventable pensions Furthermore, the military aspects of the situation offer sobering reflections The danger is present, says Stiles, that our military forces may cause a widespread infection in France and Belgium that it will take years of work and large expenditures of money to control and eradicate after the war

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[1] The following compose this advisory committee Major N M Black, Milwaukee Wis. Ophthalmology, Major H P Mosher, Boston Oto Laryngology Major V P Blair St, Louis Oral and Plastic Surgery, and Captain Charles Bagley Jr , Baltimore, Brain.

[1] McMullen J Trachoma and the Army, Pub Health Rep , 1917 **32,** 1101

[2] Stiles C W Certain Military Aspects of Hookworm Disease, Pub Health Rep , 1917 **32,** 1299

The menace from hookworm and allied disorders is, of course, greater in the case of recruits from the warmer portions of the country than from men living in colder localities Vigorous treatment in all hookworm cases following their detection by systematic examination for intestinal parasites is an obvious solution of many of the difficulties involved Skilled microscopists are demanded for the work, and the numbers of those competent is still small In critical times it is not always easy to determine what prophylactic or hygienic procedures should take precedence Stiles believes that even leaving out of consideration the money value of increased efficiency, the entire expenditure involved in the examination would be saved in the reduced pension roll It is certain, however, that the stay-at-home colleagues must prepare themselves quite as well as the medical officers with our forces to recognize the new menaces and needs of great bodies of men shifted about this country through the creation of an inevitable situation

SURGERY OF THE HEAD IN WAR

Early in the war, there was a wide divergence of opinion as to when and where operations for head wounds should be performed Sir Anthony Bowlby and Cuthbert Wallace,[1] consulting surgeons to the British Armies in France, have now reviewed the developments in the treatment of head wounds since the beginning of the war In the first year, the rule was for surgeons, called on to treat head injuries, to operate at once Apart from the physical defects, many of the patients seemed to be suffering from compression The operations were performed both at casualty clearing stations and in field ambulances Many septic complications were being seen in the base hospitals, and it was noted that the patients who, from force of circumstances, arrived at the base without previous operation did better than those operated on at the front This at first was attributed wholly to faulty technic Later it was found that if patients were kept quiet in the hospital in which they were operated on, they did well, while those who were evacuated to the base, even though apparently doing well at the time, arrived at the base in bad condition These faults were corrected by the utilization of the obvious corrective measures, namely, improvements in technic and later evacuation

The next important step was the establishment of special hospitals for head cases at the front By this means patients were given the advantages both of early operation and of prolonged rest A standard method of treatment of head injuries has thus been developed In brief, it consists of a primary cleansing of the wound, the transmission of the patient as soon as possible to the hospital in which he will remain until convalescent, the making of roentgenograms, the excision of the scalp and bone wound, a careful removal of foreign bodies, the covering of the exposed brain, the closure of the wound, and prolonged rest in bed

Dr Harvey Cushing is of the opinion that craniocerebral wounds are not usually to be considered as cases requiring immediate surgery, unless there is extensive hemorrhage, and these are practically hopeless Patients treated at a field ambulance are apt to suffer from complications after their evacuation, not because of having been transported, but as the result of incomplete procedures before transportation The external appearance of the wound is rarely to be considered as an indication of what surgical procedure should be performed Trivial wounds may require extensive operations, and vice versa Bowlby recommends special hospitals for these cases of head injury, and as the result of experience, such hospitals have been developed by the British Army Medical Department.

G H Makins[2] examined a considerable number of patients after their return to England, and he found that the mortality among this class was small, that later complications, such as cerebral abscess, are comparatively rare, and that serious sequelae, such as insanity and epilepsy, are not common Many patients with foreign bodies deeply lodged in the brain recovered These and other observations emphasize strongly that first aid is not indicated in cases of head injury, except as concerns the external wound, and that treatment, in a special hospital, equipped and manned by specialists, will yield the largest number of recoveries and the fewest complications and sequelae, even though this hospital may be far removed from the front

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[1] Bowlby, Sir Anthony, and Wallace, Cuthbert The Development of British Surgery at the Front, Brit Med Jour, June 2, 1917, p 705

[2] Makins, G H Development of British Surgery in Hospitals on Lines of Communication in France, Brit Med Jour, June 16, 1917, p 789

Mixed Infection in Epidemic Meningitis—A Netter found the diplococcus along with the meningococcus in the cerebrospinal fluid in five cases of epidemic meningitis, and has learned of seventeen similar cases in neighboring hospitals They were all encountered since last January The list includes one infant, nine children and twelve adults from 17 to 60 years old All died except one child of 5, the infant, and one young adult In five of the fatal cases there was also bronchitis or pneumonia Since then he has made a practice of injecting 2 or 3 c c of antipneumococcus serum when injecting antimeningococcus serum in cases of meningitis, and reports that only two of the nineteen patients thus treated showed the pneumococcus in the cerebrospinal fluid, and in these the disease seemed to be mitigated, both patients recovering This mixed serotherapy was given also to six children with meningococcus meningitis in a neighboring hospital and none showed pneumococcus invasion, while the pneumococci were found in one of three other meningitis children not given the antipneumococcus serum—*Bulletins*, 1917, **41**, 789

Current Comment

PROGRAM OF PREPAREDNESS IN THE ARMY MEDICAL DEPARTMENT

We comment elsewhere on one of the important divisions of the general program of preparedness that is being developed by the Surgeon-General and his associates — that on surgery of the head In addition to this and the section on venereal diseases, the program of which we have already outlined, there are divisions on internal medicine, hospitals and ambulances, laboratories, general surgery, orthopedic surgery, etc The programs of all these divisions are practically worked out, and will be taken up in The Journal from time to time There is also being outlined a general program for reconstruction and rehabilitation, to include training for special vocations Our people may rest assured that every provision is being made for the protection of the health of our soldiers, both in this country and abroad, and that the wounded — the disabled and the disfigured — soldiers will be returned to civilian life in as perfect condition as modern medicine and surgery make possible Further, plans are being worked out for the restoration of those who may be so disabled as to be unfit for their regular calling This program proposes the training of such men for some special life-work, adapted to their changed physical condition In the working out of these programs the Surgeon-General has called to his assistance the best trained men in every branch of medicine It is becoming a fact, as one has expressed it, that if one wants the best advice in any branch of medicine or surgery, one will have to go to the Army for it

BACK TO THE SIMPLE LIFE

In our grandfather s day it was usual to have the bread on the table and bread was cut as needed, also it was considered wasteful to leave food on one's plate The vital need today for conserving food has caused the United States Food Administration to urge, among other measures looking toward the elimination of waste, the preaching of the gospel of the clean plate and a resurrection of the old plan of cutting bread on the table. The by-products of war are not all evil

KIDNEY CURES

A few years ago a quack, in a Rufus Wallingford attempt to convince druggists that they would find in his nostrum a veritable gold-mine, said, with a burst of advertising candor "Fully 75 per cent. of all kidney remedies are bought by people who THINK they have some serious kidney ailment and not by people who actually have them " There stood truth, naked and unashamed The "patent medicine" man was telling tales out of school His frankness in giving away one of the most cherished secrets of the "patent medicine" business constituted a violation of "patent medicine" ethics of the gravest kind if not, indeed, *lèse majeste* against the Proprietary Association The selling of alleged cures for the self-treatment of so serious a condition as kidney disease is one of the many rotten branches of an industry that is more than 99 per cent discreditable The trade in "kidney remedies" stands condemned, not only because the self-treatment of kidney disease is fraught with danger, but also because, in order to make such nostrums commercially profitable, it is necessary to convince the public, through playing on its fears or on its ignorance, that any one of a score or more of common and unimportant symptoms is a positive and deadly indication of kidney disease A "patent medicine" of this type is dealt with in the Propaganda Department of this issue "Dr Pierce's Anuric Tablets" emanate from the "World's Dispensary Medical Association" of Buffalo, an emporium of quackery better, but no more creditably known through the sale of such nostrums as "Dr Pierce's Favorite Prescription," "Dr Pierce's Golden Medical Discovery," "Dr Pierce's Compound Extract of Smartweed," etc "Anuric" is proclaimed as the "Newest Discovery in Chemistry", it is not a chemical discovery at all It is said that "Eminent Medical Authorities Endorse It", no medical authority of eminence would touch the thing with a ten-foot pole It is claimed to be the "Wonderful Discovery" of a "Famous Physician", the only apparent discovery connected with the stuff seems to be that made by the exploiters that there is money to be made in selling alleged cures for kidney disease The "famous physician" enjoys a professional fame of the same quality and type as that which characterized Hartman of "Peruna" or Munyon of sugar pills "Anuric" is an unscientific mixture sold under false and misleading claims It is invested with the mystery that is so necessary an element of the "patent medicine" trade by the usual device of keeping its composition secret "Scare" advertisements are supplemented by booklets that may be counted on to convince any but the most well-balanced that trivial and commonplace symptoms of passing indispositions are portentous of kidney disease In short, "Anuric" and its method of exploitation conform to all the orthodox principles of quackery

WAR ECONOMY

It is interesting in these times of high prices to recall the way in which real Americans like Asa Gray, Lowell and Emerson met the financial pressure of the Civil War It is pleasant, too, to think that cheerful sacrifice and unbending resolution in a righteous cause are part of the inheritance of our race "My wife and I," wrote Asa Gray in 1862, "have scraped up $550, all we can scrape, and lent it to the United States " Lowell wrote, in a private letter, "I had a little Italian bluster of brushwood fire yesterday morning, but the times are too hard with me to allow of such an extravagance except on the brink of gelation " "The first of January," wrote Emerson in 1862, "has found me in quite as poor a plight as the rest of the Americans Not a penny from my books since last June, which usually yield five or six hundred a year, no dividends from the banks or from Lidian's Plymouth property Then almost all income from lectures has quite ceased, so that your letter found me in a study how to pay three or four hundred dollars with fifty I have been trying to sell a wood lot at or near its appraisal, which would give me something more than three hundred, but the purchaser does not appear Meantime, we are trying to be as unconsuming as candles under an extinguisher, and 'tis frightful to think how many rivals we have in distress and in economy But far better that this grinding should go on bad and worse than we be driven by any impatience into a hasty peace or any peace restoring the old rottenness "[1] The last sentence in Emerson's letter is finding many echoes today

THAT DEADLY PSORIASIS

Many and various are the excuses offered to support the claims for exemption from military service One of the latest to be given publicity is that made by a man who offered affidavits from two physicians setting forth — to quote from newspapers — that his wife "was suffering from psoriasis, a skin disease which they [the physicians] averred was incurable and which, if not given proper care and treatment, might prove fatal " That psoriasis may be incurable can be readily granted, so also may be baldness and pigeon-toes — and about as fatal

EMETIN DIARRHEA — A DANGER

Most drugs harbor dangers that express themselves when proper dosage is exceeded Pharmacodynamic effects produced by potent substances do not remain restricted to those manifestations that are therapeutically advantageous A weak concentration of hydrochloric acid, for example, such as is found in the gastric juice, is a physiologically advantageous solution at times, but concentrated hydrochloric acid is an irritant of the most dangerous sort These facts are sometimes forgotten when undue enthusiasm is awakened for some new or hitherto little used drug As a result, the borderline of physiologic safety may easily be overstepped through disregard of the knowledge that a large dose of a chemically active substance is not proportionately better because a small one is useful Lately emetin has acquired considerable prominence in the field of medicine, and at length the reports of its dangers are following the stories of its virtues Hemorrhagic gastro-enteritis has been produced experimentally with emetin by a number of investigators[2] From the Harvard Medical School in China[3] additional reports have lately come to verify the fact that emetin not rarely produces a bloody diarrhea in the course of its clinical use In discussing the danger which this involves, Kilgore and Liu remark that the difficulty in the recognition of diarrhea from emetin, as well as its danger, is due to the fact that it occurs in the course of treatment for amebic dysentery, and that the symptoms and the gross appearance of the stools in emetin diarrhea are almost indistinguishable from those in amebic dysentery All of the cases reported from China were in children that had received doses of emetin hydrochlorid considerably larger than would be proportionate on a basis of 1 grain (65 mg) for an adult Contrary to a somewhat prevalent opinion, children are not especially resistant to the drug, so that the dosage for them should be graduated with great care

FOOD CONSERVATION

Some one has said that the present world war will be won as much in the kitchen as on the battlefield There is an element of truth in the statement When this fact is realized the importance of the United States Food Administration will be understood This body has a huge task before it and is meeting it Two important publications just issued by the United States Food Administration are the "Home Card" to be hung on the kitchen wall, and the general directions for hotels, restaurants, dining cars, etc The last is in the form of a leaflet and will be of especial interest to stewards of hospitals, asylums and sanatoriums The superintendents of such institutions should write to the United States Food Administration at Washington for copies of these leaflets and should impress on their subordinates the benefits, both to the institutions and to the country, that will accrue from following the directions given Every physician who has a home of his own should send for a copy of the "Home Card" for personal use and should lose no opportunity of urging his patients to do the same thing This is one way in which we can all do a little "bit "

CIVILIAN COOPERATION IN COMBATING THE VENEREAL DISEASE PERIL

Two weeks ago, in discussing the venereal peril of our army, we called attention to the importance of cooperation between the civilian physicians in the community surrounding the camps and the medical officers in the cantonments It is encouraging to know that many communities are already in action A circular received from the health officer of Jackson, Mich , calls for a conference at Jackson of the administrative, health and police officials of the principal cities of southern Michigan, and representatives of the civil and military authorities responsible for the government of training camps, together with delegates from the medical profession, labor organizations, commercial associations and others interested in helping to do their part in this new program A committee headed by Governor Stewart of Virginia is distributing a special folder on the subject in training camps and surrounding zones in that state The California State Board of Health has outlined a definite program and has made a large appropriation to carry it out in a practical manner New York City and the state have been exceptionally active in attacking the problem from every point of view Everywhere are signs of a tremendous awakening to the new responsibility devolving on the public and especially on the medical profession in regard to these matters

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[1] Rhodes History of the United States, 3

[2] Levy, R L , and Rowntree, L G On the Toxicity of Various Commercial Preparations of Emetin Hydrochlorid, Arch Int. Med , March, 1916, p 420 Dale A Preliminary Note on Chronic Poisoning with Emetin, Brit Med Jour , Dec 18, 1915, p 895 Pellini and Wallace, Pharmacology of Emetin, Am Jour Med Sc , 1916, **152**, 325

[3] Kilgore, A R , and Liu, J H Emetin Diarrhea—Clinical and Experimental, Arch Int Med , August, 1917, p 78

Medical Mobilization and the War

EXEMPTION OF MEDICAL STUDENTS AND INTERNS

Method of Procedure

An intern or medical student called by his local board and accepted for service under the Selective Service Law but not ordered to military duty may apply to the Surgeon-General of the Army to be ordered to report at once to the local board for military service to be inducted at once into the military service of the United States immediately thereon to be discharged from the National Army for the purpose of enlisting in the Enlisted Reserve Corps of the Medical Department

NECESSARY PAPERS

Each such request must be accompanied with (1) copy of the order of the local board calling the intern or medical student to report for physical examination (2) sworn evidence of the status of the applicant as a medical student or intern, and (3) an engagement to enlist in the Enlisted Reserve Corps of the Medical Department

FORM OF NECESSARY PAPERS

No blank forms have yet been provided for the application and the affidavits called for A clear and succinct statement embodying the necessary facts and duly sworn to before a notary public will be sufficient The intern or student should appear before an officer authorized to administer oaths and sign an acknowledgment of his application to enter the Enlisted Reserve Corps on release from his obligation to enter the National Army under the draft Incorporated in the acknowledgment should be an affidavit showing his status as an intern or medical student

AFFIDAVIT FROM HOSPITAL SUPERINTENDENT OR DEAN OF COLLEGE REQUIRED

An additional affidavit showing the status of the intern should be obtained from the medical superintendent of the hospital in which he serves In the case of a student an affidavit should be obtained from the dean of the medical college as to the status of the student

The superintendent or dean must obligate himself to make such future reports as the Surgeon-General may require.

AFFIDAVIT OF INTERN MUST INDICATE DATE SERVICE BEGAN

An intern s affidavit should show the date he began service.

AFFIDAVIT OF MEDICAL STUDENT MUST SHOW GRADE AND STANDING

A student s affidavit should show whether he is in the second third or fourth year of his medical course, and what conditions if any, are outstanding against him

PROCEDURE

If the Surgeon-General acts favorably on an application he will forward it to the Adjutant-General of the Army with his recommendation The Adjutant-General may issue an order directing the intern or student to report to his local board for military duty on a specified date This report may be in person by mail or by telegraph From the date of such report the intern or student named will be considered as in the military service of the United States The Adjutant-General may forthwith issue an order discharging the intern or medical student from the military service for the convenience of the government

STUDENT SUBJECT TO DRAFT UNTIL DISCHARGED

No intern or student will be excused from reporting to his medical board or from assuming his duties under the Selective Service Law, including that of reporting at the assigned mobilization camp until after the receipt of an order from the Adjutant-General as has been described After making application for discharge from duty under the Selective Service Law and on the receipt of such discharge, the intern or medical student must perform every duty required of him under the law

DURATION OF INTERNSHIPS

No internship will be recognized for a period longer than one year from the date of its commencement

INTERNSHIPS NOT INCLUDED

(1) Internships in hospitals conducted for gain, (2) internships in private hospitals of fifty beds or less and (3) internships that have been created since May 18 1917, except to meet the needs of hospitals actually established since that date, or bona fide enlargement of hospitals since that date, will not be recognized

RELATION OF ENLISTED RESERVE CORPS TO MEDICAL RESERVE CORPS

Application for enlistment in the Enlisted Reserve Corps of the Medical Department and enlistments in that corps will not interfere with the application by an intern or by a student after graduation for a commission in the Medical Reserve Corps

DEFINITION OF A WELL RECOGNIZED MEDICAL SCHOOL

For the present a medical school recognized generally by state examining boards will be considered as a well recognized medical school

TERMINATION OF EXEMPTION

An intern or student who loses his status as such, and a student who fails to pass from one class to another or to graduate will be called into active service as needed

PENALTY FOR FAILURE TO COMPLY WITH OBLIGATION

An intern or medical student who fails to comply with his obligation to enlist in the Enlisted Reserve Corps after discharge from duty under the Selective Service Laws will render himself liable to punishment under that law

SURGEON-GENERAL'S PROGRAM FOR MANAGEMENT OF INJURIES OF THE BRAIN, EYE, EAR, ETC

The Surgeon-General has authorized the formation in one section of units devoted to the surgery of the head to wit (1) brain, (2) eye, (3) ear nose and throat, (4) mouth Major T C. Lyster, M C U S Army, chief of the section, has just reported its activities to the Surgeon-General "The physical disasters which the present war occasions are more severe and more specialized than those of any other war" he says In order that these disasters be mitigated and checked, there must be a new alignment of medical and surgical service 'The men who fight have a right to expect that the physical distress which such combat entails shall be alleviated by means as scientifically accurate as those which can be commanded by the civil population" To this problem the Surgeon-General with the support of the Medical Section of the Council of National Defense, has authorized the formation of units devoted to the surgery of the head

The justification of the organization of such units resides in the fact that their component parts represent special departments of surgery which have made notable advances Their practice requires training along special lines, and especially of military surgery They are gathered into one unit because they represent a natural selection, each supplementing and aiding the other in an effort to restore the individual to physical well being 'The vital necessity of ophthalmoscopic examination by the ophthalmologist in the work of the brain surgeon', says Major Lyster, "the need of prompt release by the brain surgeon of increased intracranial pressure to save eyesight, the value of expert examination of the ears by the trained otologist in the elucidation of the problems of neurology and cerebral surgery, the need of search by the expert rhinologist and oral surgeon for foci of infection in the accessory sinuses, the tonsillar tissues and the dental areas are well known For years this type of specialized and expert work has been at the disposal of the practice of medicine and surgery in civil life, for the first time in history it has become an integral part of the practice of military medicine and surgery"

"The service of such specialized surgery as has been described," he says, "may proceed along three lines

"1 Immediate service, or what is ordinarily known as first aid, to be given at the first dressing station Time is of vital importance in dealing with many head injuries, involving lesions of its special organs, notably of the eye, and many eyes have been saved which otherwise would have been lost where it has been possible to act at once As to the accuracy of this statement all eye surgeons who have been at the front will testify

"2 Later service in the base hospital where all operative procedures of these types of special surgery can be brought into deliberate action The triumphs of oral surgery in particular, are matters of common knowledge and of scientific record and the same is true of the procedures of cerebral surgery and of those of the eye and ear

"3 Final service in special hospitals devoted to reconstruction and reeducation In such hospitals the work of the department of the surgery of the head will find and has found one of its widest and most important fields of action, not only in individual work, but in the work devoted to those who must be trained for special duties in these regards For the purpose of making a personnel available for the tasks outlined a committee has been formed which has mobilized the material according to definite plans"

A questionnaire so worded as to give the special training and experience of the men addressed has been sent out, and those who can qualify are urged to join the Medical Reserve Corps so that they can be assigned to the division representing their specialty Letters were sent to 9,000 ophthalmologists, 5,000 otolaryngologists and 350 surgeons specializing in brain surgery Probably several hundred men specializing in oral surgery will be asked to give their services Men of known integrity were selected in each state to furnish confidential information Members of the Medical Reserve Corps wishing immediate service have been recommended to make application to the Surgeon-General for assignment to one of the Medical Officers' Training Camps for instruction in the administrative duties so necessary for the proper carrying on of the Medical Department of the Army All the specialists who have already applied for and received commissions in the Medical Reserve Corps have been indexed separately and put on a retained list so that so far as possible they may be used in the line of their specialty Methods of procedure, tests, lists of instruments and working space have been outlined by each division The Brain Surgery Section has established district boards throughout the states and outlined plans for the establishment of special schools for the instruction of surgeons classified in this section The course will be arranged along an anatomic, clinical and operative line and will extend over a period of from four to six weeks These schools probably will be established in Chicago, Baltimore, Philadelphia and New York and will be directed in each instance by an eminent brain surgeon

The Division on Oral Surgery has outlined a tentative plan for a short, intensive course of special instruction in oral surgery for general surgeons, and plans have been suggested in individual cases for helping men on base hospital units, who expect to be called out in the near future, for especially preparing themselves for doing oral surgery It is suggested that the surgeon in charge of oral surgery shall, unless otherwise specified in individual instances, have charge of injuries and surgical diseases of the mouth and its essential structures, including the bony framework and soft structures of the face, and also of the neck when the major part of the surgery is situated above the clavicle This does not include injuries and surgical diseases of the orbit, its contents and appendages, the external nose, ear and accessory sinuses, pharynx, thyroid diseases, and special cases of injuries of the peripheral nerves and spinal column Sufficient provision is made for the activities of specialists and consultations in all cases, when necessary The surgical field of three of the divisions of the Head Surgical Section (eye, ear, nose, throat and brain) are clearly defined The field of oral surgery has not been quite so defined as to prevent possible confusion in the cantonments, base or other hospital units here and abroad

DR BILLINGS IN RUSSIA

A letter just received at Red Cross headquarters gives an interesting account of the arrival of the Red Cross mission to Russia at Vladivostok, and its journey in the imperial train across Siberia to Petrograd

THE LETTER

"The party arrived at Vladivostok on the morning of July 26" says the letter "As soon as the ship docked it was boarded by a large group of officials and military personages who made their way to Dr Billings, head of our commission, to offer a welcome to Russian soil There were present the head of the provisional government, the mayor of the city, the military commander, the military medical officer, the officer of the port, and representatives of the national and local Red Cross

DR BILLINGS' GREETING

"Dr Billings' words fell with gratifying effect on his hearers when he responded to the enthusiastic welcome He said

> We have come a long distance, my friends, to see if we can do anything commensurate with the deep sympathy which is felt in our Republic for this new Republic whose representatives you are The hearts of the American people go out to you in your hour of trial—for it is an hour of trial They have given largely and spontaneously, and are willing to give more largely yet We have come to you in all modesty thinking we might be able to help your wounded and sick soldiers and extend relief to your sick and needy civilians who have suffered from the war With the political problems which you are working out in your own way we have nothing to do, except to give you our heartiest good wishes We are here to help in the ways in which we can help, and I thank you for your generous welcome and for the cooperation which you offer We are going to Petrograd as quickly as our supplies can be transferred from the Russian ship which brought us to the Russian train which we see waiting for us

"The landing at Vladivostok was made about noon Then ensued ten hours of hard work incident to the landing of a large party and a considerable cargo from ship to shore and thence to train This work was greatly facilitated by the American consul, Mr Caldwell, and his assistants The Russian Red Cross sent Col George Landou to have charge of the train It was the train which had brought Mr Root and the members of his commission back from Petrograd only a few days before The minister of communications sent as his representative Gen Vibold Ertel, who had been with the Root mission throughout its travels, and we were also provided with the interpreters who had served the Root mission The British officials, Colonel Dunlop of the consular service, and Major Binus of the British patrol, were of the greatest assistance to the party and the baggage and supplies were all passed without examination

"It was a hot afternoon and evening in Vladivostok There were cables to be answered and hundreds of details to attend to before we could proceed westward Some necessary printing had to be done in a hurry, loads of supplies and equipment had to be transferred, medical supplies had to be examined and repacked Finally at 9 45 o'clock that night the imperial train departed for Petrograd bearing our party

"Throughout the journey through the noble landscapes of Manchuria and Siberia at every stop the greatest interest was shown by the people The train was decorated with a large placard bearing the Red Cross emblem and the following inscription in Russian 'American Red Cross Mission to Russia Hospital Supplies' It was interesting to watch the crowds at station stops gather and read this notice, and then nod in pleased satisfaction as comment was murmured from man to man As the train left each station it was roundly cheered, and at Harbin there was a great demonstration

ADDITIONAL SUPPLIES FROM JAPAN

"The train consists of nine cars, four of which are laden with supplies and baggage The stock of serums and medicine brought from Chicago and New York was amplified by a large purchase of vaccines and other materials at Yokohama One box contains enough cholera serum to immunize 100,000 persons

"Everywhere the mission has gone it has been received with open arms Much light has already been obtained as to the medical needs of the Russian people, and these facts are being promptly communicated to the Red Cross War Council in Washington"

Though written on July 27, says the *Official Bulletin*, from which we quote, the letter did not reach Washington until the first week in September It traveled by courier from Siberia to Peking, and from there by diplomatic pouch, finally reaching its destination by the Pacific route

NEWS OF THE TRAINING CAMPS

At Fort Riley

A number of the instructors of the Medical Officers' Training Camp have been ordered away on special assignments Lieut Col C R Reynolds, M C has been ordered to Yaphank Long Island as division surgeon Lieut Col Jacob M Coffin who has been director of ambulances and whose enthusiasm for hiking has caused the course in equitation to be known throughout the camp as 'the Coffin Course' has been appointed division surgeon at Deming N M Lieut Col C R Snyder has gone to Anniston, Ala, as division surgeon and Lieut Col I W Weed has been made division surgeon with headquarters at Camp Funston, Kan

INSTRUCTORS FOR THE SECOND CAMP

A number of reserve officers in the first school of instructions have been detailed as instructors for the second course among them being Majors P B Cook G G Davis Ralph W Webster and Charles S Williamson Capts H I Akins J M Downs Ellis K Kerr S E Lambert W L McBride L S Milne H C. Parker J C Sessions and J G Shewbrooks

ATHLETICS AND SPORTS

Lieut F H Daminasch M R C who has been appointed athletic manager for the camp has arranged for boxing and wrestling matches every Wednesday evening Representatives of different companies and troops meet in athletic contests which have proved extremely popular A large audience is assured for each evening's exhibition

ACTIVE DUTY FOR MEN IN FIRST COURSE

Companies I II and III which began work June 16 have been assigned to active duty One of the distinct achievements of the camp was the sending out of between 200 and 300 medical officers to posts all over this country and some to foreign assignments without any confusion or delay In fact, the assigned men left the camp ahead of their schedule The smoothness and celerity with which this work was done reflect great credit on Colonel Bispham and his staff

FIELD MANEUVERS

One feature in which the Fort Riley Training Camp is probably unique is the field maneuvers which have been carried on during the past two weeks One company at a time is mounted and taken into the field A problem for medical officers is then propounded involving a definite military situation with a regiment brigade or division in a certain position and in contact with the enemy The number of wounded the location of aid and dressing stations field and evacuation hospitals the disposal of the wounded the establishment of lines of transportation and communication and the relation of the Medical Corps to the rest of the Army being some of the details worked out Student officers are assigned to duty for the day as regimental brigade and division surgeons directors of ambulances field and evacuation hospitals etc. The dressing stations and hospitals are actually established and the ambulances used for bringing in the wounded. For the purpose enlisted men of the Hospital Corps are distributed over the field each man being tagged as to his supposed condition as Dead ' Gunshot Wound of the Leg,' Stab Wound of Abdomen ' etc. The supposedly dead and wounded men are then brought in by litter squads and field ambulances and must be disposed of by the student officers in charge whose orders and disposition of the wounded is later criticized by the instructors The country around the training camp is admirably adapted for such maneuvers which are ideal for training the medical officers in handling real conditions

PRESS BUREAU APPOINTED

Colonel Bispham has appointed a special board of officers to act as a press bureau for the Medical Officers Training Camp, consisting of Major C S Williamson Capt. Frederick R. Green and Lieut Robert A. Allen

At Fort Benjamin Harrison

The impending departure of most of the National Guardsmen has created a peculiar restlessness in the camp atmosphere As the majority of the company instructors are drawn from the ranks of these men, their departure will necessitate extensive changes in the teaching personnel A general exodus began on September 8, and is still in progress Those of us that are left are for the most part heartily envious as this journey seems to be one more step in the direction of the battle front

VISITORS

The camp was honored on Monday, September 3, by a flying visit from the Belgian Mission As a great number of the medical cadets were absent on furlough over the week-end and holiday (Labor Day) no review was staged in their honor but some of those left in camp caught a fleeting glimpse of the uniforms as the automobiles sped by

LECTURES

Two lectures of special interest have been delivered during the week Of these one was given by Major L R Williams and dealt with the methods of sanitation in use behind the western front Major Williams was for a time associated with Dr Hermann Biggs who was sent over by the Rockefeller Institute and had an unusual opportunity to study his subject at first hand

The other lecture was given by Capt F H Harms, on the subject of the more recent condition of German war prisons Captain Harms was himself detailed to inspect these prisons by the American Red Cross and was given all sorts of privileges by the German government The chief point brought out in this most interesting talk was the improvement in prison conditions made effective through the agency of American inspectors At the time of his inspection which was subsequent to the prison reforms instituted by the German government the prisoners were getting 2 600 calories daily chiefly in the form of soup and showed no sign of emaciation

OTHER EVENTS OF INTEREST

During the past week by special request of Colonel Ashburn all the companies have been rehearsing the Battle Hymn of the Republic so as to be able to sing it in unison at the next parade The open-air rehearsals have been very impressive and have developed considerable cantatorial rivalry between the various companies

Colonel Ashburn is receiving hearty and well-deserved congratulations on his recent promotion

Capt Russell M Wilder assistant adjutant is on short leave of absence His place is being taken temporarily by First Lieut R H Chaney M R C of Company 7

The companies which began their training in August are beginning to lose their men to the field hospitals and other units

One hundred and forty new recruits to the training camp arrived on Monday, September 3, 250 more are now in process of arriving

Base Hospital No 32 (Indianapolis) has arrived in camp and is busily training for the hoped for period of foreign service

An admirable evening's entertainment was provided on September 3 by Lieut C J Lewis N G Pa (Medical Corps), and a few collaborators in the shape of a badger fight The exact details are not allowed to be printed by order of the committee in charge but any military man will supply them on request Suffice it to say that the affair was a striking success from the social as well as from the sporting standpoints Further details will be sent on request, on receipt of a stamped addressed envelope

COMPANY NEWS

There are now ten companies in camp aggregating 1 023 men

Company 5 gave a theater party in honor of Major McMillan's promotion They also gave a farewell banquet for their departing officers

Company 7 gave a banquet and theater party as a send-off for their officers all of whom are National Guardsmen Major Gurney has come to live in the company office and will act as instructor after their departure, in addition to his duties as battalion commander

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Physicians Recommended for Commission in the Medical Reserve Corps

During the week ended Sept. 1, 1917, 116 physicians were recommended to the Adjutant-General for commission in the Medical Reserve Corps the proportion being three majors, twenty-six captains and eighty-seven lieutenants

During the week ended Sept 8 1917, 279 physicians were recommended to the Adjutant-General of the Army for commission in the Medical Reserve Corps, the proportion being eleven majors twenty captains and 248 lieutenants

Gift for Medical Research

The War Council of the American Red Cross on August 22 appropriated $100,000 for the medical research work in France.

Homes for Soldiers

The country home of Harry Gordon Selfridge, High Cliff Castle, has been converted into a hospital for convalescent soldiers Mrs Percy Proctor has offered to place her villa near Mentone, France, at the disposition of the American Army authorities to be used as a convalescent home The villa will accommodate forty men

Goldthwaite Returns

Major Joel E Goldthwaite, M R C, U S Army, Boston, who recently returned after a visit to the hospitals in France and England to study the new methods of treating the wounded, reports that 1,000 out of 1,350 wounded soldiers who had been crushed and maimed by shells were so skilfully treated at the London Orthopedic Hospital that they were able to return to duty

United States Takes Over Ambulance Service

Medical officers left New York for France, August 30, to make physical examinations of the 1,100 Americans in the forty-five sections of the American Ambulance Field Service before the transfer to the regular establishment It is expected that the army will take over the entire ambulance corps, which will be under the command of Col Jefferson R Kean——The formal transfer of the American Ambulance, Neuilly, to the United States Army took place, July 22, under command of Major George P Peed, M C., U S Army

Air Raids on Hospitals

The Germans made an aerial attack on the American Hospital occupied by the St Louis and Harvard base hospitals, killing one medical officer and two of the enlisted personnel, and wounding nineteen——Incendiary bombs dropped by German aviators in the regions of Verdun, August 19, killed one female nurse and nineteen male nurses, in Vadelaincourt, Mount Hairon, Dugny and Belrupt hospitals and wounded forty-nine The hospitals were marked prominently with Red Cross signs ——Austrian aeroplanes bombarded Venice, August 14, and dropped bombs on the civil hospital, wounding several patients

Advisory Committee on Public Health

A committee having this name has been appointed by the United States Food Administration to act as experts for the Food Administration in problems concerning the relation of nutrition and food supply to the public health The committee consists of Dr William H Welch, chairman, Drs Leonard P Ayer, Hermann Biggs, David T Edsall, A Walter Hewlett, Theodore T Janeway, F G Novy, Richard M Pearce, H Gideon Wells and Admiral Cary T Grayson, together with Drs Alonzo E. Taylor and Ray Lyman Wilbur, of the Food Administration as ex-officio members The men named are all well known to the medical profession.

Advisory Committee on Alimentation

The United States Food Administration announces the creation of an Advisory Committee on Alimentation consisting of C L Alsberg, chief of the Bureau of Chemistry, Prof Russell H Chittenden, director of the Sheffield Scientific School, Dr C F Langworthy, head of the office of Home Economics, Department of Agriculture, Graham Lusk, professor of physiology, Cornell University Medical College, Lafayette B Mendel, professor of physiological chemistry, Yale University, and Dr E V McCollum, formerly of Wisconsin University, now of Johns Hopkins In addition, Dr Alonzo E Taylor, Dr Ray Lyman Wilbur and Dr Vernon Kellogg, members of the Food Administration, are ex-officio members The purpose of the committee on alimentation is to cooperate with experts in the policy of food control from the standpoint of scientific nutrition

Orders to Officers of the Medical Corps

The following promotions in the Medical Corps are announced To be colonels, with rank from May 5, 1917—Lieut Cols David Baker, Albert E Truby, James B Church, Joseph H Ford, Percy M Ashburn, Elmer A Dean, Francis M C Usher, Willard F Truby, Frederick F Russell and Edwin P Wolfe

To be lieutenant colonels, with rank from May 15, 1917—Majors Henry F Pipes, Charles L Foster, John R Bosley, Robert C Loving, Orville G Brown, George F Juenemann, Joseph F Siler, Arthur M Whaley, Theodore Lamson

To be lieutenant colonel, with rank from June 25, 1917—Major C R. Snyder

To be majors, with rank from June 16, 1917— Capts. C L Gandy, A. W Williams, L H Bauer, W W Vaughan, J B Anderson, E P Thode, W P Davenport, H N Kerns, R S Wilds, A J Canning, L W Webb, Jr, J H H Scudder, W C Von Kessler, J M Pratt, C L Beaven and W G Guthrie

To be major, with rank from July 19, 1917—Capt. H B McIntyre.

Col Edward R Schreiner, M C, to permanent command of U S Army General Hospital No 1, New York, N Y (Aug 24, War D)

So much of Par 119, S O 188, Aug 14, 1917, War D, as relates to Lieut Col M A W Shockley, M C, is revoked (Aug 23, War D)

Captains of M C to duty as follows George W Cook to Fort Riley, Kan, Leonard S Hughes to Fort Riley, Kan, training camp, Henry C Maddux to Fort Des Moines, Iowa (Aug 23, War D)

Capt. T D Woodson, M C, from Canal Zone, to Washington for temporary duty (Aug 27, War D)

Orders to Officers of the Sanitary Corps

First Lieut. Charles W Williams, San Corps, to duty at Louisville, Ky (Aug 23, War D)

First Lieut George C Van Sickle, San Corps, to Mineola N Y, as medical supply officer (Aug 23, War D)

Orders to Contract Surgeons

Contract Surg Benjamin F Williams to Fort Des Moines for examining in his specialty men at officers' training camp

Contract Surg Eugene J Leopold from duty at Fort McPherson to Camp Hancock, Augusta, Ga, for examining for tuberculosis

Orders to Officers of the Medical Reserve Corps

ALABAMA

To Camp Shelby, Hattiesburg, Miss, for duty, Lieut. J Shahan, Gadsden

CALIFORNIA

To American Lake, Wash, for duty in the cantonment laboratory, Lieut K. J Staniford, Fresno

To Fort Sill, Okla, for instruction in gas defense, Capts F F Sprague, Los Banos R B Irones, San Diego

To Linda Vista, Calif, for duty in the cantonment laboratory, Lieut. J M Rehfisch, San Francisco

To Letterman General Hospital, San Francisco, to report to commanding officer for duty, Capt. Frank P Topping, San Francisco

To San Francisco for duty, Lieut D E Arnold, Kerman

To Walter Reed General Hospital, Washington, D C, for duty, Lieut C L Baker, San Francisco

To report by telegraph to commanding general Western Dept, for duty, Lieuts J L Miller, Jr, Los Angeles, J T Gardner, Santa Margarita

COLORADO

To Fort Riley, Kan, for duty in the cantonment laboratory, Lieut. O F Broman, Greeley

To Fort Sill, Okla, for instruction in gas defense, Lieut W M Bane, Denver

CONNECTICUT

To Ayer Mass, for duty, Lieut L U Gardner, New Haven

To Greenville, S C, for duty at base hospital as chief of the surgical service, Capt. J S Dye, Waterbury

GEORGIA

To Atlanta, Ga, for duty in the cantonment laboratory, Capt. H L. Van Winkle, Atlanta

To Fort McPherson for equipping and training his command after completion of mobilization of Red Cross Ambulance Co 20, Lieut L P Daly, Atlanta

To Petersburg Va, for duty, Lieut J J Beaton, Waycross

ILLINOIS

To Berkeley, Calif, for duty, Lieut G C Otrich, Belleville.

To Fort Sill, Okla, for instruction in gas defense, Capt, H C. Woltman, Jacksonville, Lieuts C Barnes, F H Harms, Chicago

To Rockford, Ill, for duty, Capt W L. Baum, as roentgenologist Lieut L J Palmer, Chicago

To Thirty Fourth Division for duty, Capt B C H Harvey, Chicago

INDIANA

To Fort Sill, Okla, for instruction in gas defense, Capt L A Easminger, Indianapolis, Lieut. O O Alexander, Terre Haute

To Garden City, Long Island, N Y, for duty, Lieut. E J Dubois, Indianapolis

IOWA

To Ayer Mass in connection with venereal diseases Lieut H L Walker Cedar Rapids

To Camp Fremont Palo Alto Calif, Capt Marcus C Terry Brighton

To Des Moines Ia for duty with 3d Iowa Infantry, Lieut C. N O Leir Des Moines

To Garden City Long Island N Y for duty, Capt T A Burcham, Des Moines

KANSAS

So much of Par 146 S O 186 Aug 11, 1917 War D, as relates to Lieut Franklin W Koons Nickerson, is revoked

KENTUCKY

To Camp Taylor Louisville, Ky, for laboratory work Lieut M Flexner Louisville

To Fort Ethan Allen Vt as drillmaster and instructor for Hospital Corps Lieut R M Means Midway

To Little Rock Ark for duty in the cantonment laboratory Lieut M Warren Science Hill

To Louisville Ky for duty, Lieut M S Veal Daniel Boone

LOUISIANA

To Fort Sill Okla for instruction in gas defense Lieut F S Furman Shreveport

To Fort St Philip La for duty Lieut E. J Hubner New Orleans

To Little Rock Ark for duty in the cantonment laboratory Capt T J Robert, Baton Rouge

MARYLAND

To Admiral Md for duty in the cantonment laboratory Lieut J R Oliver Baltimore

To Camp Meade Annapolis Jct Md for duty Lieut P I Sappington Bel Air

To Montgomery Ala for duty at base hospital as chief of the surgical service Lieut D P Peters Baltimore

MASSACHUSETTS

To Admiral Md for duty in the cantonment laboratory Lieut D I MacPherson Boston

To Ayer Mass for duty Lieuts L. H Spooner Boston as roentgenologist E. L. Davis Springfield

To Camp McClellan Anniston Ala Capt Edgar M Medlar Boston

To Deming N M for duty as chief of medical service Capt F B Bigelow Worcester

To Fort Banks Mass for duty Lieut W M Crandall Lawrence

To Fort Sill Okla. for instruction in gas defense Capt I R Ilsley, Medford D F Mahoney Boston J M Birnie Springfield

MICHIGAN

To Columbia S C for duty in the cantonment laboratory Capt F W Baeslack Detroit.

To Columbus Barracks O, for duty Lieut. DeW C Adams Highland Park.

To Fort Sill Okla for instruction in gas defense Capt H M Beebe Ann Arbor

To Hampton Va for duty Lieut D V Hargrave Carson City

MINNESOTA

To American Lake Wash for duty in the cantonment laboratory Lieut A E Anderson Minneapolis

To Fort Sill Okla for instruction in gas defense Capt C C Pratt Mankato Lieut B V Bates Wheaton

To Fort Snelling Minn for duty Lieut J E Soper Norwood

To Minneapolis University of Minnesota for duty Capt I C Todd Minneapolis

MISSOURI

To Fort Sill Okla. for instruction in gas defense Capt. A A Gossow St. Charles

To Waco Tex for duty at base hospital as chief of the surgical service Capt J C Morfit

NEBRASKA

To Fort Omaha Neb for duty Lieut. F W Scott Lodgepole

NEVADA

To report by telegraph to commanding general Western Dept for duty Lieut J L. Garner Manhattan

NEW HAMPSHIRE

To Fort Ethan Allen Vt for duty Capt L. C Stillings Surry

To Fort Sill Okla for instruction in gas defense Lieut J A. Drew Rumney

NEW JERSEY

To Fort Ethan Allen Vt. as drillmaster and instructor for Hospital Corps Capt A G Bising Weehawken

NEW YORK

To Anniston, Ala for duty at base hospital as chief of the surgical service Capt J C A Gerster New York City

To Atlanta Ga for duty in the cantonment laboratory Capt G Baehr New York City

To Camp McClellan Anniston Ala Lieut. Ralph A Kinsella New York City

To Chillicothe O for duty as roentgenologist Lieut S Brown New York City

To Fort Benjamin Harrison for duty Capt. R. Morris Lincoln.

To Fort Ethan Allen Vt for duty Lieut. H L St John Rochester

To Fort Jay N Y for duty Lieuts J I Meagher New York City R N Severance, Staten Island

To Fort Sam Houston Tex. for duty as roentgenologist Lieut. D S Childs New York City

To Fort Sill Okla for duty Capts. F G Young New York City for instruction in gas defense J N Boyce Stanfordville.

To Fort Worth Tex for duty in the cantonment laboratory Lieut. C Boettiger Long Island City

To Governors Island N Y, for duty Lieut D W Cairns New York City

To Greenville S C for duty as chief of medical service, Lieut P Van Ingen, New York City

To Louisville Ky, for duty Lieut H Fox New York City

To Mineola Long Island N Y, Aviation School for duty, Lieut G I Cracey New York City

To Presidio of San Francisco for duty with Thirteenth Infantry, Lieut Jesse Ettelson New York City

To Spartanburg S C for duty as chief of medical service, Major H S Satterlee New York City

To Toronto Canada School of Military Aeronautics as post surgeon, Lieut W W Laing Brooklyn

To Walter Reed Hospital Washington for duty, Capt G Draper New York City

To West Point N Y for duty Lieut J F Grattan New York City

To Wrightstown N J for duty Major T W Hastings for duty in the cantonment laboratory Lieut H W Jackson New York City

To Yaphank Long Island N Y for duty Lieuts. A Zingher for duty in the cantonment laboratory M McBurney New York City

NORTH CAROLINA

To Camp Greene Charlotte N C for duty Lieut W J McAnally, High Point

To Fort Ethan Allen Vt as drillmaster and instructor for Hospital Corps Lieut J Thames Wilmington

To Fort Worth Tex for duty as roentgenologist Lieut H H Ogburn Greensboro

OHIO

To Battle Creek Mich for duty in the cantonment laboratory Capt D Marine Cleveland

To Columbus Ohio for duty Lieut C H Weintz Cincinnati

To Fort Sam Houston Tex for duty at base hospital as chief of the surgical service Major F F Bunts Cleveland

To Princeton N J for duty Lieut M H Urner Cincinnati

To Youngstown O mobilization of Base Hospital No 31 Major Colin K Clark Youngstown

OKLAHOMA

To Camp Travis Fort Sam Houston, Tex, for duty Lieut. C F Lee, Oklahoma

OREGON

To Fort Ethan Allen Vt as drillmaster and instructor for Hospital Corps Lieut F Van Doren Seaside

To Fort Sill Okla for instruction in gas defense Lieut D Grant Portland

To report by telegraph to commanding general Western Dept Lieut H F Carruth Yamhill

PENNSYLVANIA

To Allentown Pa for duty with Base Hospital No 27 Major T S Arbuthnot Pittsburgh for duty Lieut W J Sener Douglassville

To Annapolis Junction Md for duty Lieut J R Conover Philadelphia

To Augusta Ga for duty at base hospital as chief of the surgical service Capt W A Dearth Pittsburgh

To Austin Tex for duty Lieut C W H Conrad Philadelphia

To Camp Gordon Atlanta Ga for duty as roentgenologist Lieut W S Newcomet Philadelphia

To Camp Taylor Louisville Ky for duty Lieut. H S Wilson Huntingdon

To Chillicothe O for duty in the cantonment laboratory, Capt F Proescher Pittsburgh for duty Lieut H L Brush Conneaut Lake

To Fort Sill Okla for instruction in gas defense Lieut A L. Hicok, Meshoppen

To Ithaca N Y for duty Lieut E R Sibley Elkins Park

To Macon Ga for duty in the cantonment laboratory Lieut M H Baker Pittsburgh

To Montgomery Ala for duty as chief of medical service Major W Pepper Philadelphia

To Petersburg Va for duty in the cantonment laboratory Lieuts G R Moffitt Harrisburg for duty E J Asnis West Conshohocken

To Pittsburgh Pa for duty, Lieut J L Burkholder Mt Pleasant

To Rockford Ill for duty Lieut H I Newcomet Reading

To Urbana Ill for duty Lieut W S Shimer Philadelphia

To Yaphank Long Island N Y for duty as roentgenologist Lieut B V Wolfe, Morristown

SOUTH CAROLINA

To Columbia S C for duty in the cantonment laboratory Lieut G F Klugh Cross Hill

To Hattiesburg Miss. for duty in the cantonment laboratory Lieut T R W Wilson Greenville.

To Spartanburg S C for duty at base hospital as chief of the surgical service Capt C B Earle Greenville

SOUTH DAKOTA

To Fort Sill Okla for instruction in gas defense, Capt. F E Ashcroft Deadwood

TENNESSEE

To Columbia S C for duty in the cantonment laboratory Lieut J S Fleming Memphis

To Fort Oglethorpe for duty with Hospital Unit P, Lieuts K M Buck and S E Frierson Memphis.

To Fort Thomas Ky for duty Lieut. C. M Banks Springfield

TEXAS

To Camp Custer Battle Creek Mich, for duty Lieut. C C Odom Childress

To Fort Worth Tex. for duty in the cantonment laboratory Capt J C Flynn Galveston

To Laredo, Tex, for duty with 37th Infantry, Lieut. Eugene A Frechet, Frisco

To report by telegraph to commanding general, Southern Dept, Lieuts J F Stein, Denison, E H B Steele, Deport, H D Filmore, Maryneal, M O Rea, Pottsville, C O Terrell, Ranger

VERMONT

To report by telegraph to commanding general, Western Dept, for duty, Lieut F S Pratt, Bennington

VIRGINIA

To Battle Creek Mich, for duty in the cantonment laboratory, Capt W B Blanton, Richmond

To Camp Lee, Petersburg, Va, for duty, Lieut. J C Dunford, Portsmouth

To Petersburg Va, for duty in the cantonment laboratory, Lieut B L Crawford, Richmond

To Richmond, Va, for duty, Lieut C H Lewis, Richmond

WASHINGTON

To Fort Riley, Kan, for duty in the cantonment laboratory, Lieut W L McClure North Yakima

To Fort Sill, Okla, for instruction in gas defense, Capt N D Pontius, Seattle

To report by telegraph to commanding general Western Dept, for duty, Lieut. G W Phillips, Bridgeport

WISCONSIN

To Fort Sill, Okla, for duty, Lieut G C Ruhland, Milwaukee

To Fort Snelling Minn, for duty, Lieut G F Spencer, Evansville

To Washington, for duty, Major Nelson Black, Milwaukee

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST, SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC)

CALIFORNIA

Soldier's Welfare Work.—The California State Board of Health, August 21, established a Military Welfare Bureau for the care and prevention of venereal diseases in and near military camps in California The central station has already been appointed by Dr Wilbur A Sawyer, Sacramento The governor has appropriated $60,000 for carrying on this work

ILLINOIS

Addition to Post-Graduate School—The Post-Graduate School of Chicago has acquired from the Northwestern University a lot 50 by 105 feet, east front, 50 feet south of its present building, for $15,500, to erect an addition to the hospital

New Commissions—Dr B McPherson Linnell, Chicago, has been commissioned major, M C, Ill N G, and assigned to duty with the Eleventh Infantry——Dr Daniel W Rogers, Chicago, has been commissioned major, M C, Ill N G, and assigned to the Third Artillery

Correction—By an error in the points of the compass, THE JOURNAL announced, Aug 25, 1917, p 657, that Dr Charles E West had been appointed Medical Officer of the Camp Grant District, including the city of Rockford The name should have been Dr Clarence W East

Addresses Before Graduates—Dr Eliot R. Clark, professor of anatomy in the University of Missouri, Columbia, recently delivered an address on "Some Aspects of the Problem of Endothelium," and Dr Frederick G Novy, professor of bacteriology in the University of Michigan, Ann Arbor, an address on "Anaphylaxis," before the faculty of students of the graduate summer quarter in medicine of the University of Illinois

IOWA

State Hospital for Epileptics—The new State Hospital for Epileptics at Woodward has been completed, and was opened to receive patients, September 3

Personal—Capt Rodney P Fagen, Des Moines, has been commissioned major, M C, Iowa N G, and assigned to the Second Infantry——Dr John H Stalford has resigned as mayor of Sac City——Dr William C Witte has been assigned to take charge of rural sanitation in the extra cantonment zone, Camp Dodge.——Lieut. Charles T Kemmerer, M C, U S Army, Davenport, has been ordered to Deming, N M, his special duty being the prophylaxis of communicable diseases

MARYLAND

Personal—Dr Henry H Hampton, formerly chief resident physician at the Church Home and Infirmary, has taken up his new duties as chief resident physician of the Hebrew Hospital, succeeding Dr M B Levin, who has entered private practice——Dr Edgar Fay has been appointed an assistant resident physician at Sydenham Hospital by Health Commissioner Blake——Dr Hans Hohn, lately associated with the medical staff of Mercy Hospital, Baltimore, has accepted a post at St Joseph's Hospital, Lancaster, Pa., and has assumed his duties at that institution

Appointment to Medical Staff—Dr Cary B Gamble has been appointed on the medical staff at Camp Meade, with the rank of major Dr Gamble will be stationed at the camp permanently, and his special duty will be to specialize in the treatment of diseases of the heart and blood vessels Major Gamble will be assisted by a staff of physicians and some enlisted men Major Gamble follows to Camp Meade Major Arthur M Shipley of the University Hospital, who was selected to direct the hospital at the Maryland cantonment, Dr John M T Finney in charge of the Johns Hopkins Base Hospital Unit in France, and Dr Winford H Smith, superintendent of the Johns Hopkins, who is on the staff of Surgeon-General Gorgas in Washington

Health Report for August.—The health department's report shows that 237 babies died from illnesses due to the hot weather in August Of this number, 207 were under 2 years of age The summer has been extremely hard on infants, and the mortality among them was largely responsible for the highest August death rate in Baltimore since 1913 A total of 945 persons died during the month, compared with 901 a year ago, 822 in 1915, and 845 in 1914 Forty-two fatal accidents were reported, heart disease took a toll of 126 Other diseases were fatal in the following number of cases tuberculosis, 107, apoplexy, 58, Bright's disease, 85, pneumonia, 53, cancer, 57, typhoid fever, 10, and epidemic meningitis, 2 There have been just two cases of infantile paralysis in Baltimore this year Typhoid fever showed a remarkable falling-off The new cases numbered seventy, as against 175 a year ago Whooping cough is on the increase, there having been 208 cases last month as compared with 154 in August, 1916 The department reported 1,422 births last month

Result of Examination of National Guard—The examination of the Maryland National Guard was completed about September 1 Practically all of this work was done during the month of August Dr A P Herring was appointed by the War Department as contract surgeon in charge of this work, and was assisted by Dr J Percy Wade, superintendent of the Spring Grove State Hospital, Dr R P Winterode, superintendent of the Crownsville State Hospital, and Dr Lewis H Gundry, Relay The total number of men inspected was 5,700 Out of that number, 210 were examined and twenty-eight were recommended for rejection The Fourth and Fifth Regiments were examined at their respective camps the Field Hospital and the Coast Artillery were examined at the Richmond Street Armory, Troop A and Batteries A, B and C at the Pikesville Armory, Companies D and H of the First Regiment at Lake Montebello, Company B at Hagerstown, Company A at Frederick, and Company C at Cambridge The remaining companies of the First Regiment have not been examined Certificates of disability were made out on regular forms and forwarded through the proper channels, in order that the men might be promptly discharged Dr Herring and Dr Wade have been serving as members of the Medical Board under Form No 484 A G O, and with them the major of each regiment Maryland is the only state in which such an examination has been possible before the troops left for their cantonments

MASSACHUSETTS

Personal—Dr Elliott Washburn, for four years superintendent of the Rutland Sanatorium, has resigned to accept a position as superintendent of the Municipal Hospital of Kansas City, Mo——Dr Charles W McClure, Boston, has been made physician in charge of the medical service of St Luke's Hospital, South Bethlehem, Pa——Dr Milton H Foster has been appointed to take charge of the physical examination of aliens at the immigration station, Long Wharf, Boston

Infantile Paralysis—More than 800 cases of infantile paralysis reported to the Massachusetts Board of Health during 1916 have been given after-treatment by the Harvard Infantile Paralysis Commission Clinics were held in Boston, Newburyport, Springfield, Quincy, Lynn, Beverly, Greenfield, Worcester Malden, Melrose, Lawrence, North Adams and Lowell There were 1,917 cases reported to the state department of health during the year and of this number 454 patients died no paralysis resulted in 246 cases, and 303 patients were treated privately The commission supplied treatment directly to 698 patients, and the field agents visited 142 others

Guard Appointments and Changes—Lieut-Col William A Brooks chief surgeon of the state announces that the following medical officers have been transferred from the State Guard Unit Hospital with the rank of major Drs Donald V Baker, Brookline to the Twelfth Infantry, Edward A Supple Boston to the Fifteenth Infantry, Harold Giddings Allston to the Fourteenth Infantry, Garry de N Hough New Bedford to the Seventeenth Infantry, Charles E Durant, Haverhill to the Sixteenth Infantry and Benjamin E. Sibley, Brookline to the Eleventh Infantry——Dr Russell F Sheldon Boston has been transferred from the Unit Hospital to the Fifteenth Infantry——Dr John J Egan Gloucester has been commissioned first lieutenant and assigned to the Fifteenth Infantry——Drs Francis H Slack and Charles L. Overlander Brookline have been appointed bacteriologists to the Unit Hospital with the rank of first lieutenant——Dr De Witt G Wilcox Boston has been appointed surgeon to the unit with the rank of captain——Dr Orrin Curtis Blair Lynn has been assigned to the Fifteenth Infantry, with the rank of captain——Dr Hugh Williams Boston has been commissioned major and assigned to the Thirteenth Infantry——Dr Hardy Phippen Salem has been transferred from the Unit Hospital to the Fifteenth Infantry with the rank of captain

MICHIGAN

Base Hospital Mobilized—The Detroit College of Medicine and Surgery Base Hospital No 36 was mobilized at the state fair grounds August 24 under the command of Major Burt R Shurly Capt. Theodore A McGraw Jr., has been officially detailed as adjutant of the unit

State Trudeau Society Organized—The Michigan Trudeau Society was recently organized at Ann Arbor for the purpose of fighting tuberculosis president Victor C Vaughan Jr Detroit, vice president Dr James S Pritchard Battle Creek, and secretary Dr William De Kleine Flint.

Inches Held with Unit.—The War Department has refused to accept the resignation of Dr James W Inches, health officer of Detroit, from the Detroit College of Medicine and Surgery Base Hospital No 36 in order to allow him to accept an appointment by the American Red Cross as one of the fifteen commissioned specialists to study conditions abroad

Society Meetings—The meeting of the Kalamazoo Academy of Medicine was held in South Haven August 18 the program being furnished by the Chicago physicians who have their summer homes near there.——The August meeting of the Muskegon-Oceana Counties Medical Society was held in Muskegon August 17 Asst. Surg Harold S Hulbert U S Navy Great Lakes, Ill, presented a paper on Military Surgery'

Personal—Capt. Randall M Cooley M C., Mich N G., has been detailed as assistant chief surgeon at Camp McArthur Waco Texas——Dr Allison H Edwards has been appointed superintendent of the Grand Rapids Sanatorium——Dr Johnston B Kennedy, Detroit fell in Washington Arcade, August 21 fracturing two ribs——Dr Nellis B Foster Ann Arbor, has started for Serbia with the Red Cross Commission.

Hospital Items—The new Public Hospital Hancock was thrown open August 27 for the inspection by the copper country physicians On the following day there was a public reception and the formal opening of the institution occurred, August 29——A commission from Menominee, Delta Dickinson and Iron counties recently visited the tuberculosis sanatoriums in Marquette and Houghton counties in order to familiarize themselves with this practical phase of county service. An effort is being made to secure a county sanatorium for Menominee Delta and Dickinson counties

MINNESOTA

New Hospital for Rochester—The Sisters of St. Francis have completed the arrangements for a medical building to be erected in the rear of St. Mary s Hospital, Rochester

Insane Patients Transferred—The transfer of sixty chronic insane patients from various state hospitals to a hospital established in connection with the State Farm for Inebriates Wilmar, was made August 1 They will occupy two cottages recently erected for their accommodation

Personal—Dr Edward W Buckley, St Paul, was elected supreme physician of the Knights of Columbus at its thirty-fifth annual meeting, held in Chicago, August 8——Major James E. Merrill M C., Minn N G, has been assigned to duty as sanitary inspector at Camp Cody, Deming, N M

Women Physicians Organized—Seventy-five women physicians of Minnesota have formed an organization known as the Minnesota Medical Women's Association, and have elected the following officers president, Dr A Auten Pine, St. Paul, vice president, Dr Emma L S Aldrich, Belview, and secretary, Dr Florence M Ridgway, Minneapolis

Infantile Paralysis Clinics—The state board of health is holding clinics in various parts of the state for the examination and treatment of infantile paralysis Dr Arthur J Gillette St Paul, is acting in an advisory capacity to the state board and Dr Willard P Greene is supervising the medical part of the clinic

Sanatorium Notes—The Southwestern Minnesota Tuberculosis Sanatorium located on the south shore of Lake Okabena near Worthington was formally opened, July 23 The institution has been established and is maintained by the Southwestern Minnesota Tuberculosis Association, which comprises the counties of Nobles, Whitestone Murray, Jackson Cottonwood, Lyn and Lincoln The buildings are of monolithic concrete structure fireproof and have cost $100 000——The commissioners of Ramsey County have passed an appropriation of $16 630 for the maintenance of a county sanatorium at Lake Owasso

MISSISSIPPI

Hospital Nearly Completed—Work on the new King's Daughters Hospital, Greenwood is rapidly nearing completion An institution of this kind is much needed in Leflore and the adjoining counties

Personal—Dr Henry Boswell Booneville, has been placed temporarily in charge of the State Tuberculosis Sanatorium, McGee——Dr Joseph W Hough, Jackson has purchased for $20 000 two houses on adjoining lots which he has given to the Young Women's Business Club to be used as homes for working girls

NEW YORK

Diphtheria on Indian Reservation—On account of the existence of diphtheria in the Tonawanda Indian Reservation, the state department of health has forbidden the holding of picnics or festivals on the reservation until further notice

Society Will Take in Training Recruits—The Queens-Nassau Medical Society has initiated and maintained in the organization a collective department to take care of applicants for enlistment in the armed forces of the United States who have been rejected for minor physical defects

Director of Children's Home—The New York Civil Service Commission announces that applications will be received from Sept. 7 to Sept 21, 1917, for the position of director of the Children's Home Bureau—Applicants must be citizens of the United States and residents of the state of New York The compensation will be $4 000 per annum There is one vacancy Information may be had from Robert W Belcher, secretary Municipal Building New York.

Few Cases of Infantile Paralysis in State—During July, 1916 nearly 4,000 cases of poliomyelitis were reported in this state and almost 6 000 during the month of August In striking contrast to this, there were this year but forty-one cases reported in the entire state, including New York City The returns for August show but fourteen additional cases in New York City for the month of August, and thirty cases in the rest of the state Scrutiny of the cases shows them scattered over the state with no apparent center of infection.

Personal—Dr Edward Durney, Buffalo has been designated as deputy health commissioner during the absence in war service of Capt. Arthur C. Schaefer——Dr James P Marsh Troy, has been appointed surgeon in chief of the new Henry W Putnam Memorial Hospital, which is now approaching completion at Bennington, Vt.——Dr Hermann M Biggs, state commissioner of health, has been appointed a member of the public health staff of the conservation division of food administration——Dr William E Youland of the state department of health, Poughkeepsie, has been transferred to take up other health matters, and the dysentery situation has been left in charge of Sanitary Supervisor Marsh——Dr Barnett P Stivelman has been appointed medical superintendent of the Montefiore Home Country Sanatorium at Bedford Hills——Dr Irving I Gellman has been appointed first assistant physician of the house staff in the sanatorium, to succeed Dr Joseph Rosenblatt

Civil Service Examination—The civil service examination will be held throughout the state, October 6, for the following positions

Muscle Tester, Infantile Paralysis Aftercare, State Department of Health, salary $75 a month and traveling expenses, open to women only between 21 and 45 years of age Candidates must have had not less than three weeks' instruction of practical work in muscle testing and in the use of the spring balance

Inspector, State Department of Health, salary $1,260, for men only
(*a*) Those qualified in general sanitary and milk inspection
(*b*) Those qualified in complete construction of county tuberculosis hospitals

Assistant superintendent (male), State Custodial Asylum for Feeble Minded Women, Newark, salary $2,000 a year and maintenance Candidates must be graduates of local chartered medical colleges, licensed to practice medicine in the state, with training in psychology and other related subjects, and with at least three years' experience in the care of the feebleminded, epileptic or insane

Medical Assistant, Office of District Attorney, County of Kings, salary, $3,000, open only to male residents of Kings County who have been duly licensed to practice medicine in the state for at least ten years

Applications for these positions should be obtained from the State Civil Service Commission, Albany No applications will be received at the offices of the commission after September 26

New York City

House Given to Red Cross—Mrs Nicholas F Brady, the buyer of the Colony Club, Thirtieth Street and Madison Avenue, which was purchased for $400,000, has turned over the structure to the American Red Cross to be used as administration headquarters for the New York District during the period of the war

Sale of Absinthe Prohibited—The department of health has amended the Sanitary Code so that from September 1 it will be a violation of the code to "have, sell, or offer for sale the alcoholic beverage known as absinthe, a manufactured product containing wormwood, or absinthe, an ingredient which may render the beverage injurious to health"

Personal—Dr Michael V Ball has resigned as professor of pathology of the New York Medical College and Hospital for Women, and will resume practice at Warren, Pa——Dr Benjamin F Knause, as a result of a competitive examination, has been given first place on the list from which the health commissioner will appoint an assistant sanitary superintendent for Brooklyn——Dr Lewis P Harris has been appointed director of the Bureau of Preventable Diseases of the health department, to succeed Dr Bertram Waters who has resigned to resume private practice

War Hospital Opens Ward—The War Demonstration Hospital of the Rockefeller Institute for Medical Research has opened a second ward to which patients are admitted who have chronic or obstinate infections, compound fractures, chronic osteomyelitis, and various leg ulcers This class of patients will be used to demonstrate the efficacy of the Carrel-Dakin method of treating infected wounds

Contagious Disease Hospital—Plans have been completed for a hospital for contagious diseases to be erected in the Bronx which will have accommodation for 1,000 patients It will be a four-story structure, and will occupy the entire block bounded by Schieffelin Place, Seton Avenue, and East Two Hundred and Thiry-Third Street. The building will have glass partitions to separate the wards, and also for the observation rooms where patients will be under surveillance

Society for Reeducation of War Cripples—September 3, the National Society for the Promotion of Occupational Therapy met at the land ship *Recruit* and discussed ways and means of fitting cripples for the work they did before the war, or in case this cannot be done, reeducating them for some other vocation The society has been put on a permanent footing, and offers to investigate every case brought to its notice W P Jackson has been elected president, and Mrs Winifred Brainerd, chairman of the executive committee

Typhoid in Borough of Richmond—An outbreak of typhoid fever is reported from the West Brighton district of Staten Island Up to September 6, about thirty-five cases had been reported, and forty more were under observation The course of infection is at present supposed to be the milk of a certain dealer who has been getting his supply from Delaware, N J The usual precautions are being taken to prevent the spread of the disease, including a warning sent to about 4,000 of the residents of that section not to eat raw food, and to be careful in the selection of a milk supply

Draft Evasion—Dr Albert R Fritz, Brooklyn, is reported to have been arrested, August 25, by the Department of Justice, charged with conspiracy to obstruct the selective draft law, and to have been held in $10,000 bail It is alleged that Dr Fritz approached a registrant and promised him exemption on the payment of $300——Dr Seligman, Brooklyn, assistant examining physician on Local Exemption Board No 52, Williamsburg, is said to have been arrested, August 21, charged with conspiracy and offering to accept a bribe of $200 to disqualify a drafted man who appeared before him

Report on Drug Cases—A report of the chief statistician of the city, made at the request of Chief City Magistrate William McAdoo, shows that during the first six months of 1917 there have been 1,242 drug cases disposed of by the city magistrate Of this number, 1,104 of the defendants were men, and the remainder women The cases were separated into four classes the voluntary commitments, through the magistrate's office, to Warwick Farms, of which there were 108, the drug addicts, over whom the city magistrates have summary jurisdiction, of whom there were 175, 138 male and thirty-seven female, the distributors of drugs charged with misdemeanor under the public health law, of which there were 471, 424 men and forty-seven women, and the dealers charged with misdemeanor Of the 392 felony charges against dealers in narcotics, 339 defendants were men and fifty-three were women

OHIO

Northwestern Ohio Physicians to Meet—The annual meeting of the Northwestern Ohio District Medical Association will be held at Lima, October, 17-18, under the presidency of Dr James R Tillotson, Delphos

Joint Tuberculosis Hospital.—The county commissioners of Lorain, Erie, Sandusky and Huron counties have arranged a meeting to consider the feasibility of constructing a tuberculosis hospital for the four counties, to be located at a central and accessible point

Health Insurance Board Appointed—August 23, the governor appointed the following commission to conduct a study of health insurance, sickness prevention and old age insurance M D Hammond, Columbus, D F Garland, Dayton, Andrew Warner, Cleveland, T J Donnelly, Columbus, M W A Julian, Cincinnati, D R. Kennery, Youngstown, and O B Chapman, Dayton

Personal—Dr Paul A Murr, Galion, was seriously injured, August 25, by being crushed between an automobile and the wall of a building——Dr Ora O Fordyce, superintendent of the Athens State Hospital, has been granted further leave of absence on account of ill health——Dr Herbert M Platter, Columbus, medical inspector of schools, has been appointed temporary secretary of the State Medical Board, succeeding Dr George H Matson, deceased——Dr Ralph W Van Horn, Findlay, saved a man from drowning in Lake Erie at Rye Beach, August 19——Dr Martin F Vereker has been elected a member of the Common Council of Hamilton

PENNSYLVANIA

Personal—Dr William M Lynch, Clarks Summit, who has been appointed superintendent of the State Hospital for Criminal Insane at Farview, Wayne County, has resigned as senator from Lackawanna County, and has entered on the duties of his new position——Dr Ross H Skillern, Philadelphia, has been appointed major in the U S Medical Reserve Corps to take charge of the Nose and Throat Unit at Camp Sheridan, Montgomery, Ala——Dr Alfred Gordon, Philadelphia, addressed the York County Medical Society at its annual meeting, September 6, on "Differential Diagnosis and Modern Treatment of the More Common Neurological Conditions Met with in General Practice"

Philadelphia

Hold Red Cross Carnival—A carnival and bazaar was held by the southeastern section of the American Red Cross in West Philadelphia, September 7, to raise $1,000 for the Red Cross Fund

Medical Institutions—The Union County Society met in annual session, July 19, at Lewisburg, with eight members present. Officers were elected for the ensuing year as follows president, Dr Ralph Steans, vice president, Dr Harry R Thornton, secretary-treasurer, Dr Amos V

Persing Allenwood, reporter Dr William E. Metzger, Alvira, censors, Drs Thomas C Thornton and William Leisler, and committee on public policy and legislation Drs Charles A Gundy and William Leiser, Lewisburg, and Paul H Bigle, Mifflinburg

Negro Association Pledges Aid—At the opening session of the National Medical Association an organization of colored physicians pharmacists and dentists which met in the southwest branch of the Young Men's Christian Association, August 28 delegates pledged themselves to use their influence with negroes all over the country to induce them to enlist and to loyally support the government in war A committee consisting of Drs G J Bowen J A Kenny and W J Daniels was appointed to visit the Surgeon-General to question him as to the manner in which the members of the association can best aid the government They will also offer to the government a fully equipped base hospital for service abroad

Personal—Dr Edward E Montgomery has been elected president of the Philadelphia Branch of the National War-time Prohibition Committee——Dr Frank C. Abbott, who has been in France since the beginning of the war was specially mentioned for service on the occasion of the distribution of medals at Vendome——Dr William H Morrison was elected president of the Baltimore and Ohio Association of Railway Surgeons at its meeting in Cleveland June 22——September 7 Dr Wilmer Krusen director of public health and charities delivered an address on Activities of the Municipal Health Department at the College Settlement. The meeting was attended by nearly 200 persons, including many neighborhood physicians

UTAH

Personal.—Dr Andrew J Bowman Salt Lake City has been commissioned first lieutenant Utah National Guard, and assigned to duty with the Field Hospital Company——Dr John S Gordon Ogden who was knocked down by a car in Los Angeles several weeks ago sustaining a fracture of the hip is reported to be improving

Typhoid Fever—The report of the Salt Lake Board of Health for the week ending August 25 shows that on that date there were thirty-five houses under quarantine in the city on account of typhoid fever Dr Theodore B Beatty secretary of the state board of health who has just returned from an inspection trip states that outside of Salt Lake City there is less typhoid fever in Utah this year than there has been in any corresponding season in twenty-five years

VIRGINIA

National Quarantine Station—Craney Island across the Elizabeth River from Norfolk Va. has been turned over by the Navy Department to the United States Public Health Service to be used as a National Quarantine Station, and Congress has been asked to appropriate $400 000 for the purpose of erecting the necessary buildings on the island

GENERAL

Book on Health in War—The American Museum of Natural History has published a booklet entitled ‘Health in War, which is intended for distribution at a nominal price as a means of acquainting the soldier, recruit, and also the general public with all the proper precautions against disease and other causes of poor health The book is being issued in connection with the Food and Health Show”

Examinations for Appointments in the Children's Bureau—The previously announced examinations for special agents and research assistants to fill vacancies in the Children's Bureau Department of Labor at salaries ranging from $1,200 to $1 680 a year and examinations for assistant inspectors, Child Labor Division at the same salaries which was scheduled to be held September 19 and 20 have been postponed to Sept. 20 and 21 1917 This is the most recent announcement of the Children s Bureau in regard to these examinations

Association of Military Dental Surgeons.—The Association of Military Dental Surgeons of the United States, John D Millikin president with headquarters in San Francisco is making a bid for additional members on account of the increased interest in military dental matters induced by the war The association now publishes a quarterly bulletin containing dental military news of interest to both the Army and Navy Dental Corps At present it is contemplated by the military authorities to have at least 1,000 members in the Dental Reserve Corps

Safety Congress—The American Museum of Safety held its fourth annual National Safety Congress and Exposition in the Grand Central Palace, New York, during the week of September 9 The entire ground floor of the Grand Central Palace was occupied by appliances for accident prevention, fire prevention and sanitation Reports of the organized safety activities last year claim a saving of 5,000 lives through their efforts Statistics show that 22,000 workingmen were killed in American industrial accidents during the year 1916 and that more than 1,500 000 were injured so that they had to lose time from their work during the year Of this number, 600 000 were incapacitated for more than four weeks It is estimated by Arthur H Young the director of the American Museum of Safety, that 70 per cent of all industrial accidents are preventable

Civil Service Examination—The United States Civil Service Commission announces that examinations will be held at the time stated for the following positions

October 2 Scientific Assistant in the Public Health Work (male) salaries Grade 1 $1 500 to $2 000 Grade 2 $900 to $1 500 Applicants for Grade 1 must have had college or university instruction in medicine biology or sanitary engineering subsequent to graduation from a four year s high school course and at least six months experience in Public Health work under federal or state authorities Applicants for Grade 2 at least graduation from a four year s high school course and six months experience of public health work under federal or state authorities must be between 21 and 35 years of age, of good character and physique

October 3 Pathologist (male) to fill vacancy in Freedmen s Hospital Washington D C salary $2 000 a year Applicants must have had at least one year s experience in a pathologic laboratory after having graduated from a medical college of recognized standing and must be able to make all kinds of pathologic examinations and reports thereof applicants must be citizens of the United States, and must have reached their twentieth birthday

Physician (male) to fill present and future vacancies in positions of physicians of the Indian and Panama Canal service acting assistant surgeon of United States Public Health Service surgeon in the Coast and Geodetic Survey and other similar positions salaries in the Indian Service $1,000 to $1 200 a year in the Panama Canal service $1 800 a year in the Public Health Service from $480 to $1 800 a year and in the Coast Geodetic, $1 020 a year and an allowance for subsistence of $1 per diem while serving aboard ship except in the Philippines, where the allowance is $2 50 per diem Applicants must be graduates from medical schools of recognized standing or senior students in such institutions and must furnish proof of actual graduation within six months from date of examination for Public Health Service at least two years experience and practice since graduation is required Applicants must be at least 21 years of age, but eligibles more than 40 years of age will not be certified except to fill vacancies as acting assistant surgeon in Public Health Service. In the Panama Canal Service applicants must be between 22 and 30 years of age For the positions in Public Health Service and Coast and Geodetic Survey the medical certificates in the application form may be executed by officers of the Public Health Service

Applicants should apply at once for form 1312, stating the title of the examination required to the Civil Service Commission Washington D C, or the secretary of the local civil service board

CANADA

Infant Mortality in Ontario—The number of deaths in children under 5 years of age in Ontario in 1915 was 8,632. The towns show up well in this regard the same as in tuberculosis Of the total number, 3 943 occurred in the cities, 4,144 in the rural municipalities and 545 in towns The deaths are 133 greater than in 1914

Cancer in Ontario—The rate per hundred thousand of the population in deaths from cancer in Ontario is 71.3, the total number of deaths being 1 982 in 1915 This is an increase of sixty-eight, and an increase in the rate in 1914, which was 69 6 The Ontario Board of Health is now conducting a campaign of education with respect to cancer and other diseases

Births, Marriages and Deaths in Ontario—The forty-sixth annual report of the vital statistics of the province of Ontario for the year 1915 has recently been issued The population of the province is estimated to have been in that year 2,767,350 The births registered for the entire province were 67,032, the males being 34 701 and the females 32 331 The illegitimate births were 1 472 The marriages numbered 23,506, as against 24 245 in 1914 The deaths were 33,294, as against 32,440 in 1914 The following diseases give the highest mortality in the province organic heart disease, 2 835, tuberculosis, 2,466, pneumonia 2,352, cancer, 1,982, apoplexy, 1,418, diseases of the arteries 1,242, infantile diarrhea, 1,189, Bright's disease, 1 117, bronchopneumonia, 662, paralysis without specified cause, 527 As to tuberculosis, the rate per hundred thousand of population for deaths from this disease is eighty-nine, which is an increase of four over that of the two preceding years. The increase in the number of deaths is 122. In 1914, tuberculosis caused 7.2 per cent., and in 1915, 7.4 per cent. of all deaths. It is interesting to note that the percentage of deaths in rural municipalities is put down at 57.5, while that in cities is 36.2, and in towns 6.3. The ratio per hundred thousand population in cities is eighty-seven; in towns, twelve, and in rural municipalities, eighty-seven.

FOREIGN

Organization of National Radium Institute in Argentina.—Both houses of the Argentine legislature have voted affirmatively on the creation of a radium institute to be in charge of the medical department of the University of Buenos Aires. The state is ordered to obtain for the university up to half a gram of radium, the sum of 120,000 pesos, national money, having been appropriated for the purchase of the radium. The agitation which has resulted in the decree was inaugurated by the Sociedad de Obstetricia y Ginecologia. The institute is to be modeled on a similar institution at Montevideo, which has been issuing promising reports since its foundation a year or so ago.

The Argentine Medical Library.—The Argentine Medical Association has resolved to enter the publishing field to a certain extent so that the best medical works by Argentine writers will get their chance of publication. The series of books thus to be published by the association are to be known as the Biblioteca Medica Argentina. The first book of the series is already in press. It is Dr. E. R. Coni's "Memoirs." As Coni has always taken a leading part in matters connected with hygiene and the public health, his autobiography forms a complete history of hygiene in Argentina. Some of the chapters have been appearing recently in the *Semana Medica* and the *Prensa Medica* of Buenos Aires, but the whole is now to be issued in book form. It seems to be the plan to publish the works in serial form first, in the *Revista de la Asociacion medica Argentina*, the official organ of the association. The first chapter, with illustrations, appears in the *Revista* for July.

PARIS LETTER

PARIS, Aug. 16, 1917.

Homage Shown by the American Committee on Study in France

Mr. Sharp, ambassador of the United States, recently called on M. Steeg, minister of public instruction, to pay his respects in the name of the American Committee on Study in France, and to present to him a copy of the volume entitled "Science and Instruction in France." This book, in the preparation of which numerous professors and scholars of the United States have collaborated, presents a complete and remarkable survey of the scientific development in France during the past hundred years, and enumerates the resources of every nature that our country offers at the present time to the active investigator and to students.

M. Steeg thanked Mr. Sharp warmly for the step that had been taken, and requested him to convey his cordial congratulations to the authors of the work.

The War

TREATMENT OF PURULENT PLEURISY BY PROLONGED ASPIRATION

At a recent meeting of the Académie de médecine, Dr. J. S. Dauriac explained the method of prolonged aspiration that he uses in the treatment of purulent pleurisy, which is a frequent sequela of chest wounds. All his patients made a rapid recovery, in two weeks, on an average, and the history of their illness was remarkably simple. The technic employed is as follows: A rubber tube 1.5 meters long is introduced into the pleura and pushed down to the bottom of the pleural cavity. The edges of the wound are drawn close around the tube, or the orifice around the tube is padded with small compresses. The empyema is relieved and the necessary costal resections made. The pleura is irrigated with neutral solution of chlorinated soda and the false membranes are removed. The distal end of the tube passes through the dressings, is attached to the lateral branch of a glass tube bent in the shape of a hunter's horn, and functions as a water tube. A reservoir of water is installed 1.5 meters above the level of the bed, and a tube from this reservoir connects with the horn-shaped tube, through which the contents of the reservoir flow in drops into a receptacle placed at the foot of the bed. The falling of the water through the trumpet-shaped tube produces a constant vacuum in the lateral branch that is buried in the pleural cavity. The water dropping constantly produces also a constant vacuum in the pleura. When for any cause the tube ceases to perform its function, the patient is immediately aware of it. The feeling of comfort and easy respiration that he had before is succeeded by a feeling of discomfort and oppression. This uncomfortable feeling is due to the fact that the lung ceases to reach the limits of the pleura by the aid of the prolonged aspiration. This procedure shortens markedly the duration of the pleural suppurations, which often threaten to continue indefinitely, owing to the fistulas which develop. Two weeks suffice to put an end to the discharge. The dressings are never soiled and there is no odor whatever. Moreover, the patients, who are always cachectic in purulent pleurisy and remain so for a long time, rapidly assume the appearance of good health.

THE MEDICAL SERVICE AT THE BATTLE OF FLANDERS

In order that, during the offensive of July 31, the soldiers of the Anthoine army might be cared for, restored to health and evacuated as rapidly as possible, three sorting stations had been provided near the firing line. At these stations the first-aid dressings were opened by qualified surgeons, who gave to each patient, according to the nature and gravity of his wounds, a card designating a definite surgical center to which he should be removed. Thanks to the explicitness of the instructions given to the hospital ambulances that were to take the men to these centers, few errors were made, and none that were made entailed serious consequences. An innovation that was introduced in the case of the transportable wounded was an intermediate unit between the sorting stations and the evacuation hospitals. In the intermediate hospital center the available surgical resources were such that it was possible to operate on all the wounded without exception before directing them to the evacuation hospitals charged with their further transportation. Thus were avoided the dangers of infection and of gas gangrene, the untoward results of which were so deplorable at the beginning of the war. These precautions were all the more necessary because on the banks of the Yser our soldiers had to fight in a veritable mire.

THE SANITARY CONDITION OF THE AMERICAN TROOPS IN FRANCE

The report of the Medical Corps of the American Army indicates that all the American troops in the French camps are in excellent health. The only diseases confirmed are measles and mumps. All the troops are vaccinated against typhoid fever and smallpox. The Medical Corps is hastening the installation of a hospital at the port of landing. Red Cross stations have been established all along the line between the port and the entraining camps.

A PHYSICIAN THE VICTIM OF HIS DEVOTION

The *Journal Officiel* has just published a decree appointing to the rank of knight of the Legion of Honor Dr. Henri Blanc, formerly a hospital intern, to which the following comment is attached: "Exceptional claims. A distinguished surgeon. Although relieved of all military obligations, he has given, since the beginning of the war, unsparingly of his time and energy in the treatment of the wounded. During the course of a surgical operation he suffered a slight puncture of the skin which brought on a grave septicemia endangering his life."

TREATMENT OF PALUDISM OF THE SALONIKI TYPE

At the last meeting of the Académie de médecine, Dr. Marchoux of the Pasteur Institute presented an interesting communication on this subject. According to the reports of certain authors, it seems that the Saloniki type of paludism differs from the type commonly known, and that it resists treatment by quinin administered in classic doses. In order to get a clear conception of the nature of the parasites of which so many soldiers returning from the Orient are carriers, Dr. Marchoux followed the course of the disease as displayed by the patients in the Pasteur Hospital. The blood of the patients whom he inspected was subjected to daily microscopic examinations. The thick-film method by which a drop of blood is dehemoglobinized, as recommended by Ross and perfected by Tribondeau, has been found particularly useful. After staining by the Romanowsky method, the examination of thirty fields is sufficient to give a high degree of diagnostic precision. All the patients except one (who was suffering from quartan fever) had been hospitalized for benign tertian fever. After they had been rid of the parasites of the type *Plasmodium vivax*, five of them remained carriers of gametes of *Plasmodium falciparum* The Saloniki type of paludism is therefore produced by Laveran's three types of hematozoon Quinin treatment remains as usual sovereign When administered by the digestive tract in 1 gm doses quinin alkaloid insures the rapid disappearance of the schizonts It seems that an exaggerated importance has been attached to subcutaneous and intravenous injections Too rapid elimination of the drug is an objection This objection applies strongly to the use of easily soluble salts, and even more so to the introduction of solutions under the skin or especially into the blood stream The superiority of cinchona to quinin was formerly proclaimed by Trousseau The reason for his choice may doubtless be sought in the slow absorption of the alkaloids From the researches of Marchoux it develops that quinin sulphate acts better than the more soluble salts and that basic quinin is preferable to the sulphate The sulphate contains 72 per cent of quinin, the hydrate contains 85 per cent The hypodermic and intravenous injections are not always without danger and should be reserved exclusively for the treatment of pernicious attacks which require energetic interference In the treatment of chronic malarial fever the remedy should be administered by mouth and in a form as slightly soluble as possible Basic quinin just fits the requirement Quinin does not stop an attack once it has set in When the schizonts bordering on maturity undergo division a dose of 1 gm of quinin absorbed *en masse* may ward off the fever When the schizonts are younger it is better in order not to incite auricular trouble to administer four 25 gm wafers in twelve hours The parasites break up and disappear in twenty-four hours without causing an attack

Quinin has some effect on the gametes of *Plasmodium vivax* and *Plasmodium malariae* but it does not reach them all some being always left, those that are still growing seem to be able to resist successfully the action of the quinin Even though the hematozoon resists quinin treatment, it should not be regarded as a cyst or a spore It is not in a state of repose but in a condition of activity At the end of an average period of two weeks it undergoes division (like an asexual plasmodium) by a sort of parthenogenesis The radial striation thus formed serves as the point of origin for new generations of schizonts and gametes The result of this evolution is that a cured attack is followed by a recurrence two weeks later If the asexual generation is only slightly abundant the attack is not forthcoming and the period of apyrexia lasts a month When the patient is the host of several distinct generations of parasites weekly or even more frequent attacks are induced The rational treatment consists in destroying the schizonts as fast as they are produced until the gametes are exterminated It is impossible to accomplish clinically the sterilization of patients, because the infection does not manifest itself until an attack appears and then it is too late to intervene The microscope however reveals the parasites two or three days before the onset of the fever and makes it possible to destroy them as soon as their presence is discovered By this procedure it would seem possible to sterilize a patient by the mere use of a few grams of quinin In order to attain this end it would be well to assemble all malaria patients in a rural hospital in which they could be protected against mosquitoes of the genus *Anopheles* and their blood could be examined daily All those for whom the test proved negative would work in the fields the others would be given quinin and would be kept quiet Until such an arrangement can be made one can preserve in a state of convalescence such malaria patients as feel able to work by obliging them to present themselves twice a week at a dispensary provided with laboratory facilities

The empiric procedure which consists in giving quinin every day offers a high degree of safety but it is open to the objection that it entails a heavy waste of a valuable drug and also produces at times untoward symptoms of a mild nature to be sure but such as to have their effect on the patient. Since from two to three days at least are required for the parasites to multiply sufficiently to incite any fever it is practical therapy to give 3 gm of quinin each week in order to reach all the different generations that are successively produced If the suppression of four generations can be successfully accomplished, this would appear to be sufficient to sterilize the system in any event to such an extent as to permit the patient to triumph over any remaining elements Quinin does not prevent parthenogenesis from taking place If administered in too small quantities it does not hinder the development of parasites One gm in twenty-four hours is the required dose, which will however be sufficient only on condition that it is actually absorbed Judging from the relative frequency of infections with *Plasmodium falciparum* in the Orient and infections with *Plasmodium vivax* in France, it is not possible to conclude that these two types of malaria parasites are identical Many patients are infected with both parasites The infections with *Plasmodium falciparum* are more rare in France than in the Orient because, for reasons as yet unexplained, patients suffering from malignant tertian seem to recover spontaneously in the climate peculiar to France

LONDON LETTER

London, Aug 26, 1917

Bonesetters and Parliament

For half a century at least there has flourished in London some 'bonesetter" with a reputation of succeeding where the best surgeons of the day have failed The man who now holds that position is a Mr Barker who enjoys the patronage of some of the most eminent persons Such is his reputation that the members of Parliament have made it a grievance that the government does not seek his aid for the treatment of disabled soldiers whom by the way, he has offered to treat gratuitously One member alleged that nearly all the great discoveries of medicine had come from outside the medical profession and had nearly all been regarded in exactly the same way as "manipulative surgery" (the term by which the bonesetter dignifies his occupation) is now regarded by the orthodox members of the medical profession For example ether was first used by unqualified men Pasteur was refused a hearing because he had no degree, and Lister was scoffed at when he suggested the employment of antiseptics' This member also pointed out that Mr Hodge the present minister of labor, sprained his knee and was told by his physician that by usual methods of treatment the process of cure would be slow and advised him to go to Mr Barker to whom he was carried in a motor car After his treatment he was able to walk home

Sir Watson Cheyne who was recently elected as member for Edinburgh and St Andrew's Universities, in a maiden speech said the difficulty was that if something were given to one particular bonesetter many other bonesetters would want it given to them also He did not dispute the excellence of Mr Barker s work, but if he were accepted, the Army Medical Service would be flooded with irregular practitioners who were absolutely incompetent. If bonesetters were admitted where was the thing to stop? Were they to refuse faith healers who gave wonderful accounts of their work? Then there were cancer curers and herbalists and all sorts of unqualified persons who had asked to come in His own experience of bonesetters, as a rule was that they were not educated for their job They were usually brought up in places where a considerable number of accidents occurred, and had acquired a reputation for facility in dealing with them He did not say that there were not some men who having become bonesetters, had set to work to try to learn something about bones and joints, but the average bonesetter did not The bonesetter had only one diagnosis—dislocation—and only one method of treatment and that was to wrench and twist the limb The human frame was a very delicate organization It should not be meddled with by people who did not know it as intimately as it was possible to know it after years of study In spite of want of knowledge on the part of the great majority of bonesetters, they did often produce marvelous cures, and it was a great puzzle for a long time how these were brought about. They themselves spoke of a dislocation which they reduced but it was quite clear that in many cases this was not so They tore through adhesions which had formed. Developments of that kind occurred often in former days but now the surgeon was on the alert in the case of all injuries against such developments There were certain dangers in connection with these cases it might happen as the result of a sprain or slight injury of the joint that disease was set up in the adhesions—for instance, a patient with a tendency to tuberculosis might get a tuberculous cyst in connection with the injured joint, probably such a joint would get well with careful attention, but if a bonesetter broke it down with violence, it might set the disease to spreading with rapidity and utterly spoil the joint He had seen many such cases, and more than once had had to amputate A still more tragic thing was that a tumor sometimes developed in the bone, and he had known cases in which the bonesetter still thinking it was a case of dislocation had violently broken up the part, and the disease, which was local had then spread throughout the whole body Turning then to cases of dislocation of the cartilage, he said that it might be due not only to injury but also to three or four other causes When it was really a case of dislocation of a cartilage, manipulation might give great success, it was necessary, however, to exercise great care in diagnosis In soldiers it was not usually a case of loose cartilage, but terrible fractures and terrible breaking up of the joint. He had not heard that bonesetters claimed any skill in treating wounds, the treatment of wounds was the whole science of the business of the surgeon among soldiers Sepsis getting into wounds was the trouble, and to avoid sepsis was a difficult problem not yet fully solved Was the bonesetter to be allowed to put his dirty fingers into a wound?

Mr Macpherson, undersecretary for war, replying for the government, pointed out that, unlike civilians, soldiers could not choose their own physician The state required that every physician must have passed a recognized test and could not, therefore, ask a soldier to undergo treatment by an unqualified man The soldier could do so on his own responsibility and if he died, or was maimed for life, the state could not be responsible If the Army Council said that a duly qualified physician could send a soldier to an unqualified man and he refused to obey that order, the Army Council would dismiss him from the service If, on the other hand, he did send the soldier to an unqualified man, he would be disobeying the General Medical Council Vote of credit, by way of amendment to which the subject was raised, was then passed, that is, the subject was dropped

The Welfare of the Blind

A committee appointed by the government to consider the condition of the blind and the means available for their industrial or professional training has just made a report It has come to the conclusion that the condition of the blind calls for the more active intervention of the state to secure (*a*) central control, organization and assistance for the existing agencies of voluntary help, which could be utilized with far greater effect if centrally directed, and (*b*) additional assistance for the blind It is recommended that a special department, whose function shall be the general care and supervision of the blind, shall be set up in the ministry of health, whenever such a ministry is created, and that in the meantime it shall be set up in the Local Government Board This central authority should make grants, capital and annual, for the purposes indicated in the recommendations The initial capital expenditure considered most essential is that for increasing the workshop accommodation Three thousand additional places are urgently required, and the estimated cost per place varies from $500 to $875 An outside estimate of the capital sum required would be $2 500,000 The annual expenditure is estimated at approximately $1,250,000

CAUSES OF BLINDNESS

The following uniform definition of blindness is recommended "Blindness means too blind to perform work for which eyesight is essential." The absence of a generally accepted definition militates against persons being marked out for special treatment by the state and being eligible for the benefits of various organizations for the blind Further, the want of such a definition seriously hampers the collection of exhaustive and uniform statistics In regard to the causes of blindness, ophthalmia neonatorum is declared to be responsible for over 10 per cent of the cases The committee recommends that steps should be taken to assure uniform and more effectual notification of the disease, and that the immediate treatment of all patients should be secured It is also recommended that the provision and wearing of goggles in dangerous occupations should be made more widely obligatory, as the proportion of blindness caused by accident could be thereby reduced The provision for the elementary education is regarded as generally satisfactory The following recommendations are made 1 The attention of elementary education authorities should be drawn to the necessity of seeing that all possible steps are taken to discover the aptitudes of blind pupils 2 Residential institutions are preferable to day centers for the majority of young children 3 The employment of blind teachers whenever practicable should be encouraged, and the salaries of blind teachers should be on an equality with those of teachers with normal eyesight 4 The committee has no doubt that the education departments will give their closest attention to the need for Braille books, which the National Institute for the Blind is endeavoring to meet 5 The education authorities should take steps to increase the number of schools or classes for the separate treatment of myopic and partially sighted children 6 A uniform scheme of after-care should be initiated in the elementary educational system, and a detailed register should be made of all the children in the elementary schools, and by means of paid visitors, the elementary education authorities should keep in touch with the children leaving elementary schools till they are transferred to a secondary education authority or some recognized organization for the blind The government should consider the desirability of increasing the facilities for the higher education and professional training of blind persons, and of extending the grants payable in respect of pupils undergoing professional training, and the central authority should endeavor to secure financial assistance for persons embarking on professional careers Pianoforte playing, tuning and repairing, typewriting, massage, teaching, the ministry, the law and commerce are mentioned among occupations for the blind The financial position of the Royal Normal College, which is mainly dependent on charitable funds, has a serious deficit The accommodation for industrial training does not appear to be materially deficient, but the problem is the inadequacy of workshop accommodation

BLIND SAILORS AND SOLDIERS

In the matter of pensions, the committee recommends that further grants should be placed at the disposal of the central authority Soldiers and sailors blinded in the war are very adequately provided for at St Dunstan's Hostel (a hostel for soldiers blinded in the war described in previous letter) The largest number of men learn cobbling They learn in six or seven months to sole and heel a pair of boots, and those who have acquired this industry are making good earnings The cobblers are also taught mat making Constant employment is thus secured Basket making, joinery, poultry keeping, shorthand writing and massage are also taught The men have been uniformly successful in passing the examinations of the Incorporated Society of Trained Masseurs, the most severe in England In every possible case a man is returned to his original occupation In conclusion, the committee refers to the extremely hopeful nature of this problem, and is convinced that if its recommendations are adopted the proportion of the blind to the population will gradually and permanently be reduced It hopes that each decade will see a diminution in the number of those who are blind from birth and those who are blind from accident.

Marriages

Lieut Roy Clark Gutch, M R C, U S Army, Chariton, Iowa, to Miss Ruth Chase of Indianapolis, at Des Moines, August 15

Asst Surg Joel Jesse White, U S Navy, to Miss Ina Virginia Armistead, both of Nashville, Tenn, August 22

Alpheus McKibben, M D, Pittsburgh, to Miss Constance Margaret Hartgering of Rapid City, S D, August 22

Joseph Ellis Skaggs, M D, Leavenworth, Kan, to Miss Margaret Marshall Cole of St Louis, August 25

Warren Ernest Tupper, M D, Cameron, Idaho, to Miss Ada Taylor of Forest Grove, Ore, August 22

Jacob Henry Terlinden, M D, Bonduel, Wis, to Miss Alydia Hoge of Jackson, Wis, August 22

Roscoe Edmunds Steffield, M D, Cleveland, to Miss Elizabeth Sufall of Sommerset, Pa, August 21

Gustav Baar, M D, Portland, Ore, to Miss Vera Rosenblatt of San Francisco, August 24

Hubert Franklin Meachan, M D, Oak Park, Ill, to Miss Genevieve Mason of Chicago, recently

Harrison M Wellman, M D, to Miss Freda G Keller, both of St. Petersburg, Pa, recently

Albert J Bower, M D, Greenville, Mich, to Miss Carlotta Selleck of Flinto, Mich, August 16

Lieut Philip M Bedessem, M C, Ill N G, to Miss Marie Foley, both of Chicago, August 4

Edward J Purtell, M D, to Miss Antonette Krubsack, both of Milwaukee, Wis, July 8

Lyman Alden Copps, M D, to Miss Stella Bernice Murat, both of Madison, Wis, July 16

Hans Nachtigall, M D, to Miss Annamarie von Frantzius, both of Chicago, August 20

Deaths

Elizabeth A Follansbee, M D, Los Angeles Calif, Women's Medical College of Pennsylvania, Philadelphia, 1877, aged 77, formerly a Fellow of the American Medical Association, a member of the Medical Society of the State of California, for twenty-five years professor, and thereafter emeritus professor, of diseases of children in the University of Southern California Los Angeles, said to have been the first woman to practice medicine in southern California, one of the founders of the Hospital for Children, and Training School for Nurses, in San Francisco, died in the psychopathic ward of the Los Angeles County Hospital, August 22

William Thomas Fitzsimmons, 1st Lieut M R C U S Army Kansas City, Mo University of Kansas, Lawrence and Kansas City, 1912, aged 28, adjutant of the Harvard University Base Hospital Unit on duty in France, was killed by the explosion of a bomb dropped from a German aeroplane, September 8 It is reported that when the German aeroplanes were sighted Dr Fitzsimmons came to the door of his tent just as two bombs fell, exploding within 6 feet of him This is the first death of an American medical officer from wounds since the declaration of war with Germany

Wyllys Seaman Walkley, Act Asst Surg, U S P H S, Grand Haven Mich, University of Michigan Ann Arbor 1879, aged 71, formerly a member of the Michigan State Medical Society and president of the Ottawa County Medical Society a member of the Association of Military Surgeons of the United States, a veteran of the Civil War, for many years surgeon in charge of the U S Marine Hospital at Grand Haven, died at his home August 29, from heart disease

Almon Darwin Blakely, M D., Syracuse, N Y, New York University New York, 1880 aged 69, formerly a member of the Medical Society of the State of New York and once president of the Otsego County Medical Society, health physician of Milford visiting physician to the Cooperstown Hospital, and president of the board of education of Milford, died at his home, August 24 from the effects of a fall several weeks before in which he sustained a fracture of the hip

Herschel D Hinckley, M D., Oxford Ohio Medical College of Ohio, Cincinnati, 1867, aged 70, formerly a member of the Ohio State Medical Association, for many years a practitioner of Cincinnati, surgeon in St Mary's Hospital, professor of surgery and dean of the faculty of the Cincinnati Polyclinic and Post-Graduate School and professor of surgery in the Cincinnati College of Medicine and Surgery, died at his home August 29 from cerebral hemorrhage.

Philip Kittredge Taylor, M D, New York, University of Pennsylvania Philadelphia 1882, aged 57, a Fellow of the American Medical Association, for eight years surgeon of the Ward Steamship Line, and surgeon of the steamship *Monterey*, was taken ill with nephritis on the steamer, and on her arrival in Brooklyn, August 21 was removed to the Brooklyn Hospital, where he died the same night

John Adams Colliver, M D., Los Angeles, Calif, University of California, San Francisco, 1899, aged 45, a fellow of the American Medical Association, instructor in pediatrics in his alma mater, a well known specialist in diseases of children, died in the Angelus Hospital Los Angeles, August 22, from pneumonia following a surgical operation

Green Robbins Hulsizer, M D, Philadelphia, Jefferson Medical College, 1887, aged 55, formerly a Fellow of the American Medical Association, a member of the Medical Society of the State of Pennsylvania, Commander of the Philadelphia Medical Emergency Corps, died at his summer home, in Delanco, N J, August 31

John Herbert Ewing, M D., Delmont, Pa, College of Physicians and Surgeons, Baltimore 1897, aged 44, formerly a Fellow of the American Medical Association a member of the Medical Society of the State of Pennsylvania, president of the Delmont Board of Health, died at his home, August 27, from cerebral hemorrhage

Andrew Stewart, M D, Chicago, McGill University, Montreal, 1883, L.R.C.P (Lond) 1884, aged 57, a Fellow of the American Medical Association, and for several years a member of the faculty of the College of Physicians and Surgeons, Chicago, died at his old home in Howick, Que., about September 8

Skidmore Hendrickson, M D., Brooklyn, N Y, New York University, New York 1866, aged 76, a Fellow of the American Medical Association, for one term president of the Queens County Medical Society, acting assistant surgeon U S Army during the Civil War, died at Monsey, N Y., August 30

Charles Hooks Harris, M D, Cedartown, Ga, New York University, New York, 1857, aged 83, for half a century a practitioner of Cedartown, surgeon in the Confederate service during the Civil War, died at the home of his son, in Cave Spring Ga, August 18, from senile debility

Oliver Morton Davis, M D, Marion, Ind, Medical College of Indiana, Indianapolis 1894, aged 47, a member of the Indiana State Medical Association, and a member of the Marion Health Committee of Public Instruction, died in his apartment, August 26

William S Gillam, M D, South Manchester, Conn, University of Pennsylvania, Philadelphia 1888, aged 58, a Fellow of the American Medical Association, surgeon of the First Infantry, Conn N G, died in Hartford, Conn, July 21, from cerebral hemorrhage

Charles James Paton, M D, San Francisco, University of California San Francisco 1883, surgeon for many years in the service of the Pacific Mail Steamship Company, and surgeon of the steamer *Peru*, is reported to have died at sea, about August 22

Frederick F Laws, M D., Minneapolis, Northwestern University Medical School Chicago, 1874, aged 68, one of the founders of the Norwegian Lutheran Deaconess Hospital, Minneapolis, died in that institution, August 26, from cerebral hemorrhage.

Levi Springer Gaddis, M D, Uniontown, Pa, Jefferson Medical College 1873 aged 67, a Fellow of the American Medical Association, secretary of the board of trustees of the Uniontown Hospital, died in his apartment, August 31

John Edgar Brock, M D., Arkansas City Kan, Rush Medical College 1890 aged 56, a Fellow of the American Medical Association, died at his home, August 19, from nephritis

Joseph King Turner Van Pelt, M D, Chelsea, N J, Jefferson Medical College 1864 aged 85, for more that fifty years a practitioner of Philadelphia, died at his home, August 20

E A Chance, M D, Garfield, Ga, University of Georgia, Augusta, 1892, a member of the Medical Association of Georgia, also a pharmacist, died at his home, August 13

Oliver Graham Burgess, M D, North Yakima, Wash, Harvard Medical School, 1885, for several years deputy health officer of Yakima County, died at his home, August 19

L V Conwell, M D, Van Buren Ind, Indiana Medical College, Indianapolis, 1878, aged 63, died in the Marion (Ind) Hospital, July 8, after an operation for hernia

Robert C Andrews, Floydada, Texas (license, Texas, Act of 1907), aged 84 formerly a member of the State Medical Association of Texas, died at his home, August 13

Fay Austin Allen, M D, Roswell N M, University of Louisville, Ky, 1909, aged 38, died in a sanatorium at Albuquerque, N M, August 17, from tuberculosis

Jacob B Heller, M D, Easton Pa, University of Pennsylvania Philadelphia, 1878, aged 64, died in the Easton Hospital, August 19, from septicemia

Edward Watson Updegraff, M D, Keyport N J, Tulane University, New Orleans, 1897, aged 40, died at his home, August 2, from heart disease.

Jacob Salamon, M D, Brooklyn, Long Island College Hospital, Brooklyn, 1917, aged 25, was drowned while bathing at Coney Island, August 19

Leopold Johan Schaub, M D, Columbus, Ohio, University of Marburg, Germany, 1860, aged 83, died in Grant Hospital, Columbus, August 22

Raymond Leonard Feser, M D., Chicago, Loyola University, Chicago, 1915, aged 25, died at his home, August 25, from pneumonia

James Edward Smith, M D, Shenandoah, Pa, Maryland Medical College, Baltimore, 1907, aged 35, died at his home, August 22

Robert McGurk, M D, Standish, Mich, University of Michigan, Ann Arbor, 1878, died in St. Petersburg, Fla, recently

Thomas A Allen, M D, Berlin, Tenn., University of Nashville, Tenn., 1860, aged 79, died at his home, August 14

J T Wharton, Ceredo, W Va (license, West Virginia, 1883), died at his home, August 15

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

A FAKE NEOSALVARSAN FACTORY

A Medical Diploma Mill as a Side Line

"Dr" Nicholas Clements is under indictment in New York City for manufacturing and marketing imitation Neosalvarsan, and operating a fake medical-diploma factory, he is charged with grand larceny, forgery and conspiracy The Department of Health of the City of New York is responsible for unearthing this swindle An inspector of the department's Bureau of Food and Drugs came across a suspicious lot of Neosalvarsan some time ago and, on June 20, succeeded in obtaining 10 tubes of what purported to be Neosalvarsan but which proved to be nothing but a little common salt colored yellow A second lot of the fake product was obtained some time later from a Third Avenue druggist

Fake Neosalvarsan seized by the inspectors of the New York City Department of Health showing three different makes of spurious products The large box at the top (*A*), representing the cleverest of the three imitations, and was purchased by a wholesale export house for $1 800, it is not worth a cent At the left are seen (*B*) empty ampoules, (*C*) labels, inserts, etc, also a tin of aluminum paint (*D*) for painting the *tin* containers used in the lot shown in the middle of the picture (*E*) In the two other imitations aluminum containers were used Notice the steel die (*F*) used by the counterfeiters to emboss the emblem on the cover of the middle containers

Visiting physicians at the recent session of the American Medical Association held in New York will remember the specimens of imitation Neosalvarsan that the Department of Health of the City of New York displayed in the exhibit hall This brand was made, it seems by one Arthur Tomassell who was arrested last week by the New York police charged with grand larceny and held in $5,000 bail How extensive a business this has been may be gauged from the fact that Tomassell had ordered 50,000 aluminum containers made in imitation of those in which the genuine Neosalvarsan is supplied

The arrest of Clements for the more recent sale of fake Neosalvarsan was due to the persistent detective work of Inspector Cohen under the direction of Mr Lucius P Brown of the Bureau of Food and Drugs Mr Cohn traced the supply to 2323 Belmont Ave, where he found an individual styling himself Dr Nicholas Clements The police cooperated with the Health Department and in arresting Clements the interesting discovery was made that not only was he manufacturing fake Neosalvarsan but that he also was engaged in selling fake medical and dental diplomas One Lazinsky who purported to be a physician declared when apprehended that he had purchased a diploma from Clements and said that Clements assured him that he would have no trouble in practicing without a license because he, Clements, was an inspector of the New York State Medical Association Among Clements' papers, seized by the police, was a framed letter dated Oct 31, 1902, addressed to Nicholas Clements, 403 W Broadway and signed James Taylor Lewis as "Counsel" for the New York State Medical Association This letter declared that Clements was appointed by Lewis as an inspector to assist "in the apprehension and conviction of illegal practices of medicine" In addition to Lazinsky, a "Dr" Lacavora, 198 First Ave, Manhattan, has been arrested for practicing medicine without a license and under a "diploma" purchased from Clements Two other alleged doctors—Brooks Forester Norwood and Stanley Tomassell have been apprehended as a result of the investigation of Clements' diploma mill

The traffic in fake Neosalvarsan has evidently been lucrative Tubes of the imitation product cannot have cost more than five or ten cents each to prepare and they were sold to physicians for from $5 50 to $9 00 each depending on the urgency shown by the physician The printing on the labels and circulars of the genuine preparation had been reproduced photographically for use with the imitation, and the embossed cap on the aluminum container had also been cleverly imitated Health Department officials in New York believe that the publicity the Department has given to the fraud in the sale of fake Neosalvarsan has resulted in fewer physicians purchasing the preparation from speculators Most of the recent sales have, it seems, been made to wholesale drug houses who wanted the drug for exportation One lot alone now in the possession of the Department of Health was purchased by a wholesale export house for $1,800, it is, of course, not worth a cent

PIERCE'S ANURIC TABLETS

A Fake Cure for Kidney Disease

"Anuric" is "The Newest Discovery in Chemistry," if one is to believe the World's Dispensary Medical Association of Buffalo, N Y "Eminent Medical Authorities Endorse It" "A New Remedy for Kidneys, Bladder and all Uric Acid Troubles" Thus does quackery play on the fears of those who are led to believe that every pain in the back means "Bright's disease" "Anuric," the public is told, "is the recent discovery of Dr Pierce who is head of the Invalids' Hospital and Surgical Institute of Buffalo, N Y" The concern also puts out such nostrums as "Pierce's Favorite Prescription," "Pierce's Golden Medical Discovery" and other profitable specialties in the merchandise of quackery

In common with most "kidney disease cures," Anuric is advertised by the "scare" method. Here are some advertisement headlines

> "Sudden Death Caused by Disease of the Kidneys"
> "Why 'Anuric' is an Insurance Against Sudden Death"
> "Are You Being Slowly Poisoned?"
> "If It Catches You There, Anuric Will Quickly Stop It"

The typical pictures of the stooping man, with his hands over the lumbar region, graphically conveying the idea—as erroneous as it is popular with fakers—that pain in the lower part of the back means disease of the kidney—are strongly in evidence

> "Most cases of kidney trouble may easily be overcome by merely taking a little Anuric with the meals"
>
> "When the kidneys no longer pour forth waste, uremic poisoning occurs, and the person dies it is a good insurance against such a risk to send 10 cents for a sample package of 'Anuric'—the latest discovery of Dr Pierce"

Needless to say, the changes are rung on the old uric acid superstition

> " hundreds daily give their thankful endorsement to this powerful enemy of uric acid"
>
> " will throw out and completely eradicate this uric acid from the system"

> Anuric is 37 times more active than lithia in eliminating uric acid '
>
> Anuric will overcome such conditions as rheumatism, dropsical swelling cold extremities scalding and burning urine and sleeplessness due to constant need of getting out of bed at night, by carrying off the uric acid poison

FRIGHTENING THE VICTIM

Those who purchase a box of 'Dr Pierce's Anuric Tablets For Kidney And Backache get in addition to 50 kidney-shaped red pills a booklet that may be counted on to convince the average person that he or she has kidney disease The booklet starts out by giving what purport to be "symptoms of disease of the kidneys' which have been taken from the Diagnostics of Internal Medicine' by Dr Butler, whose great work on diagnosis is one of the standards in use by physicians ' Apparently, the World's Dispensary Medical Association has turned over the compiling of the 'symptoms" to the office boy or some equally massive intellect By comparing the quotations with the original it is found that first of all the pa ent medicine' concern has copied a number of symptoms of movable kidney The symptoms are tabulated, removed from the context and separately paragraphed Of course the public is not advised that these symptoms are of movable kidney They are led to believe by the Anuric' booklet that they are symptoms of disease of the kidneys" The idea of attempting to cure movable kidney with pills would be humorous, if the matter were not so brutally serious Then follows another page of symptoms, still, of course under the 'blanket' description of 'disease of the kidneys' taken from Dr Butler s chapter on 'Uremia" The public, of course is not advised that these are symptoms of so deadly a condition as uremia nor if it were, would it realize the preposterous futility of treating uremia with 'Dr Pierce s Anuric Tablets' Then, still under the blanket" head, come more symptoms picked at random from Butler s description of acute Bright s disease, chronic Bright s disease (both diffuse and interstitial) pyelitis, nephrolithiasis and perinephritic abscesses In no case,' says the pamphlet, 'are all these symptoms felt at one time.'

A Famous Physician's Wonderful Discovery
Prevent Old Age Coming Too Soon!
If It Catches You There
ANURIC
Will Quickly Stop It!
Why Suffer With Backache, Kidneys or Rheumatism?
"ANURIC!"

Greatly reduced reproduction of some of the Anuric advertisements Notice the attempt to capitalize the public s misapprehension that a pain in the lower part of the back means kidney disease.

The booklet then takes up various conditions that are supposed to be more or less related to diseases of the kidney In the chapter on Colds Bronchitis' the reader is advised first to take 'Dr Pierce s Pleasant Pellets" following them up with "Dr Pierce s Anuric Tablets' In "Stomach Trouble due to "weak kidneys" the sufferer is told that "Anuric Tablets will be found to help and assist the kidneys to do their work thus relieving all the other organs" In the chapter on "Bright's Disease' we read

> In the early stages the use of these tablets will speedily restore the kidneys to normal and healthy action and do away with the congestion and changes that appear in the kidneys and their function. It is important that they be used early

"Menstruation, Scanty, Painful and Profuse" is the subject of another chapter, although just what relationship this bears to kidney disease is not explained However, "Dr Pierce's Anuric Tablets and Dr Pierce s Favorite Prescription" are recommended Under 'Stone in the Bladder" the booklet tells what wonderfully successful results have been achieved by the 'Physicians at the Invalid s Hotel and Surgical Institute' by means of an instrument of "their own invention" used for crushing the stone. For 'palliative treatment' of the condition there can be no better agent than Dr Pierce's Anuric Tablets" In the latter part of the book this statement appears

> In all these conditions the use of Anuric Tablets' is of great benefit Reference may be made to the writings of eminent medical authorities quotations from whose works *included in this book* [Italics ours —Ed] will give some idea of the extent to which they are used by the medical profession and as to how satisfactorily they act in removing the diseased conditions that produce these painful maladies"

This can only mean, and evidently is intended to mean, that Anuric Tablets' are used by the medical profession and that 'eminent medical authorities' have referred to "Anuric Tablets' in their writings which references are alleged to be quoted in the booklet Of course no physician needs to be told that the medical profession does not use Anuric Tablets and that no eminent medical authority has ever praised this piece of quackery

GARBLED QUOTATIONS

Under the title What Others Say of Them" the booklet purports to quote the opinions of certain medical writers on, not "Anuric Tablets" as the average reader might infer, but of one or more of the unnamed drugs which are claimed to be ingredients of 'Anuric Tablets ' Not all of the alleged quotations have been checked, but enough of them have been to show that the matter is misquoted, garbled and that unwarranted liberties have been taken with the author s statements Yet, the matter is given in the booklet within quotation marks and so arranged as to convey the idea that it has been taken literally and verbally from the books quoted

For the purpose doubtless, of adding to the element of mystery the names of none of the alleged ingredients are mentioned and in quoting the names of some of the alleged ingredients have been suppressed and the non-informative pronoun it' substituted To better understand the liberties that have been taken in compiling the advertising 'literature' on 'Anuric Tablets" part of the matter that has been printed in the 'Anuric' booklet alleged to be a quotation from "Lloyd and Felter in King s American Dispensatory" will be compared in parallel with the original

ALLEGED QUOTATION AS IT APPEARS IN THE ANURIC BOOKLET	AS IT APPEARS IN THE ORIGINAL
Rheumatism yields to it when a swelling of a part or whole of the body is present, or even where there is slight puffiness or glistening of the parts It is a decided heart stimulant and has relieved the heart oppression due to smoking It is also a decided antineuralgic, relieving sciatic pleural and lumbar neuralgia The most valuable remedy to relieve renal congestion or inflammation It is one of the best remedies for acute inflammation of the upper passages of the nose and throat.'	Rheumatism yields to it when edema of a part of or whole of the body is present or even where there is slight puffiness or glistening of the parts Frequently it must be given with other antirheumatics Apocynum is a decided heart tonic. The conditions above named and a dilated condition of the cardiac ventricles point to its use It is not the remedy where the circulation is excited with hard quick pulse Dr E R Freeman reports an inveterate case of angina pectoris benefited by it Edema was a feature of the case. Dr Waterhouse relieved the precordial oppression of a smoker with it Dr J C. Kilgour declares it a decided antineuralgic relieving sciatic, crural and lumbar neuralgias Prof G C. Gere asserts that it is the most valuable of deobstruents to relieve renal congestion in the second stage of tubular nephritis. Too much, however must not be expected of it where there are structural changes of the vital organs Acute inflammation of the upper laryngeal and post nasal is specifically met by this drug according to Prof Webster being nearly as positive as phytolacca and preferable when the irritation does not extend beyond those parts and is readily brought on by slight exposure.

By comparing the alleged quotation with the original, it will be seen that the Anuric concern, by separating phrases from their context, omitting qualifying clauses, featuring the alleged virtues and ignoring the limitations of the drugs discussed, attempts to make out a case for what is said to be one of the ingredients of its "kidney cure." The trick is as old as the "patent medicine" business itself and it is entirely fitting that the World's Dispensary Medical Association should run so true to form

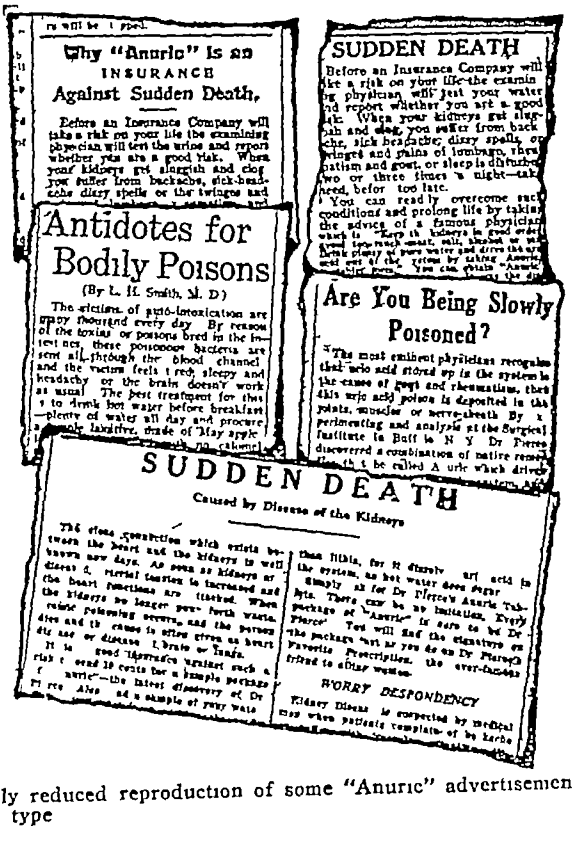
IN THE PRE-ANURIC DAYS

Anuric is one of the newer "patent medicines" put out by the World's Dispensary Medical Association This concern has for many years published a pretentious book of about 1,000 pages entitled "The Peoples Common Sense Medical Adviser" devoted mainly to advertising the "Invalids' Hotel and Surgical Institute" and incidentally to the exploitation of its nostrums Before the days of the Anuric Tablets the following statements appeared regarding Bright's disease

> "We venture to assert that less than 1 per cent of those who imagine they have 'Bright's' have this disease at all "
>
> " true Bright's disease is not a common affection, and nine out of ten individuals who think that they suffer from it, or the early stages of the trouble, in fact have something more curable "
>
> " in true Bright's, deposits [in the urine] of any kind are rarely met with "

Under the same subject (Bright's disease) the "Common Sense Medical Adviser" published—before the days of "Anuric"—this good advice

> "Not less harmful are the many advertised 'kidney cures,' 'kidney remedies,' 'buchus' and kindred preparations The cases of Bright's disease reported cured by these preparations are cases of far less dangerous maladies, made to appear, by exaggerated accounts of them, as true Bright's disease. The use of these general, ready made or proprietary remedies in any case of true Bright's disease is hazardous in the extreme "



Why "Anuric" Is an INSURANCE Against Sudden Death.

SUDDEN DEATH

Antidotes for Bodily Poisons

(By L. H. Smith, M. D)

Are You Being Slowly Poisoned?

SUDDEN DEATH

Caused by Disease of the Kidneys

WORRY DESPONDENCY

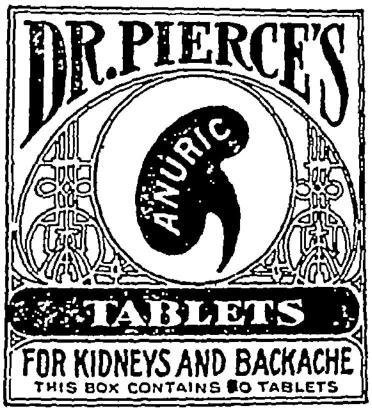
Greatly reduced reproduction of some "Anuric" advertisements of the "scare" type

Attention is especially directed to the closing sentence of the matter just quoted So long as the World's Dispensary Medical Association had no "kidney cure" to sell but instead wished to have people who had or thought they had, kidney disease either come to the "Invalids' Hotel" or be treated by correspondence, the concern was willing to tell the truth about "patent medicines" of the "kidney cure" type ALL OF THIS MATERIAL HAS BEEN DELETED FROM THE BOOK NOW SENT OUT!

For the purpose of determining in a general way the composition of "Dr Pierce's Anuric Tablets for Kidneys and Backache" the assistance of the American Medical Association's Chemical Laboratory was invoked The laboratory report follows

LABORATORY REPORT

"Six original bottles of 'Dr Pierce's Anuric Tablets' were submitted to the Chemical Laboratory for examination Each bottle contained 50 red, kidney-shaped, coated tablets, weighing on an average 0 5 gm (7½ grains) Qualitative tests indicated the presence of acetate, carbonate, chlorid, iodid, phosphate (trace), salicylate, ammonia, calcium, iron (trace) potassium, sodium, emodin, aloin, quinin, hexamethylenamin and sugar The amount of reducing sugar, calculated as dextrose, was about 35 per cent Besides the substances mentioned above, there are evidences of other drugs being present What some of these drugs are may be judged by tracing the so-called quotations appearing in the circular around the bottle Although in many instances garbled, the statements evidently refer to such plant drugs as *Apocynum cannabinum* (Canadian hemp), *Eupatorium purpureum* (Queen of the meadow), etc. Such a mixture as the above is so unwarranted and foolish, that a more exhaustive examination appeared a waste of time But from the qualitative data alone, it can be seen that Anuric Tablets contain essentially sugar, an acetate, iodid and salicylate of either sodium or potassium, quinin, aloin and hexamethylenamin, calcium carbonate is present as part of the coating "



Summed up, it may be said that the selling scheme of Anuric Tablets is first to frighten those who have any vague aches and pains into the belief that something is wrong with their kidneys for which Anuric purports to be the one great remedy The popular idea that urinary sediments and pain in the lower part of the back mean kidney disease, while false, is assiduously cultivated It is unnecessary to tell physicians of the dangers of self-diagnosis and self-treatment in such a serious condition as true disease of the kidney The public is wedded to the idea that every disease can be cured by taking something out of a bottle three or four times a day The average man does not realize that in the treatment of kidney disease the hygienic and dietetic measures may be of vastly greater importance than drug therapy Such measures mean a certain amount of discomfort to the patient, the breaking up of old habits, a readjustment of one's method of living If a cure can be brought about by taking medicine why should one subject himself to the minor discomforts of a modified diet and a more or less exacting hygiene? Therein lies the danger and wickedness of all alleged cures of kidney disease

Not only are "Anuric Tablets" foisted on the public under false and misleading claims but, as alleged cures for diseases that should never be self-treated, they are fundamentally and essentially vicious

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Facilitating the Making of Books for the Blind—The *Ugeskrift for Læger* describes a method for manifolding books with raised letters for the blind The paper to be used for the page is placed between two frames with openings corresponding to the letters to be punched Instead of punching them on a zinc plate, as is the usual method, an oiled and water-tight paper is stretched below, and the letters are punched with an instrument built on the principle of the ticket punch A pulplike mass, a mixture of dextrin, starch and rubber, is then spread over the frame It dries rapidly and when taken off, this hard sheet has the printing in letters in relief It is then a simple matter to print as many sheets as desired from this matrix The printing can be done in the home by this means and the books manifolded The technic is said to be the invention of Max Herz, privat-docent at the University of Vienna

Correspondence

"PATRIOTISM RAMPANT"

To the Editor —Continuing the subject of "Patriotism Rampant Patriotism sometimes goes to excess, but like the old adage of better to have loved and lost than never to have loved at all, it is better that patriotism ramp, and wildly ramp than that it crouch or cower That the language and literature of a people reflect the spirit of the people is a truism why then should we wish to perpetuate or encourage by any authoritative act of our own the spirit that decorates authors of 'Hymns of Hate , that finds solemn treaties but scraps of paper', that stamps its very money with "God damns" of its enemies that mints commemorative medals of the sinking of a *Lusitania* that while professing good will with its lips sinks the ships of its friends "without a trace being left ?

I take off my hat to Patriotism Rampant"

But *science*—so much *science*—will be lost to us if patriotism continues to ramp To this, like Job to his comforters I am willing to reply slightly paraphrasing No doubt but the German is the language and all wisdom shall die without it '

W F R. Phillips, M D., Washington, D C.

To the Editor —Dr Robert Peter's letter in The Journal, Sept 8 1917 reminds me of Mark Twain's comment, in Appendix D to his Tramp Abroad"

> for I once heard a gentle and lovely old German lady say to a sweet young American girl 'The two languages are so alike—how pleasant it is we say Ach Gott ' you say Goddam"

F A. McDermott Washington, D C.

FIRST YEAR MEDICAL STUDENTS AND THE DRAFT

To the Editor —It is a genuine relief to all interested in the medical aspects of national preparedness to know that a way has at last been announced whereby second third and fourth year medical students may continue their training for future service. First year medical students are not included doubtless because of the fear that if they were medical schools would become a refuge for slackers

It would indeed seem that there can be no other reason for this failure to provide for the first year student, for the only valid and conclusive argument for keeping any medical student at his work is that there should be at no time, either during the war or after it is over a diminution in the output of medical schools The demand for hospital interns and for the recruiting of every branch of the profession with an adequate supply of men trained in modern medicine will continue year by year after the war Before war was declared the output was not quite equal to the demand The demand will be greater—not less—after the war is over

Far-seeing leaders in medicine recognize today that the medical resources of America will be heavily called on to assist in the rehabilitation of war-devastated Europe For this reason if for no other it is most desirable that there shall be no diminution in the number of students entering on the study of medicine this year If possible this number should be increased. There can be no question of the demand for the service of these men when they are graduated four years hence.

In my opinion the delay of the War Department in providing for the continuance of medical students at their work will tell chiefly in deterring men from entering on the study of medicine this year Many causes will contribute to this result, one of the most important being the natural hesitation to incur the expense of a period of five years of study with no assurance that it will be uninterrupted Ordinary foresight dictates that it is sound policy to keep this loss of first year students to a minimum

Granting that it is better to keep the medical schools free from slackers so that only those men will go in for medicine who have the aptitude and taste therefor as a profession, there is a class of first year students many of whom are drafted but against whom no just charge of being slackers can be preferred, namely, those men who, prior to the declaration of war—or even prior to the introduction of the draft bill into Congress—had declared their intention of entering on the study of medicine in the fall of 1917 In many colleges there are premedical courses in which students are formally registered, other college students can show that they had given their names to the deans of medical schools as candidates for entrance, still others can show that their entrance credits had been approved for admission These men are as truly in the medical ranks as the man who has finished the first year of his medical course Why should they not be included in the order by which drafted medical students have the privilege of enlisting in the Enlisted Reserve Corps of the Medical Department and so of being discharged from the National Army to continue the study of medicine? They will be needed four years hence, it may be that they will be needed as England needs medical graduates today

When last May, college authorities at the urgent request of the Medical Board of the Advisory Council of National Defense discouraged not only medical but premedical students as well from leaving their studies to volunteer for officers' training camps ambulance corps, hospital units, etc., because continuance at their work was their best form of national service—and this on the one ground given above, that "their country needs their trained and not their untrained service" —these drafted premedical men followed this sound advice and made their contribution to the service of their country Will the government now do less to make as strong as possible our future medical preparedness?

To accomplish the desired result it is only *necessary to* extend the privilege of enlisting in the Enlisted Reserve Corps of the Medical Department to all men who can present evidence satisfactory to the Surgeon General that prior to the declaration of war—or to the introduction of the draft bill into Congress—they were recognized as candidates for admission to any well recognized medical school

Theodore Hough Ph D, Charlottesville, Va
Dean, University of Virginia Department of Medicine.

OPPORTUNITIES FOR WOMEN IN LABORATORY WORK

To the Editor —I note the editorial mention of this subject in The Journal, Aug 18 1917 p 569 During the 1917 summer school at the University of Wisconsin, there was offered in the Department of Agricultural Bacteriology a special course in laboratory methods The object in presenting this course was to give to young women who had had preliminary work in bacteriology an intensive training in those laboratory procedures that are of greatest importance from the standpoint of the diagnostic and control laboratory To this end special attention was devoted to the methods used in the examination of water and of milk and the diagnosis of tuberculosis, diphtheria and typhoid fever The course was taken by nineteen young women all of whom had had at least a year and a half of chemistry and a semester's work in bacteriology A number of these women had had a more extensive preliminary training Some of these young women have already accepted positions in laboratories, and a number of others are available for such work.

E. G Hastings M S, Madison, Wis
Professor of Agricultural Bacteriology

PRIORITY IN APPLICATION OF HEAT IN CORNEAL ULCERS

To the Editor —In the abstract of the discussion on the papers of Drs Verhoeff and Shahan (The Journal, June 30, 1917 pp 1973 ff) Dr L Webster Fox credits Dr Barkan with being the originator of the application of heat in the treatment of corneal ulcer Without in the least wishing to impugn Dr Barkan's claim as "one of California's pioneers in ophthalmology " I will say that it is a grave error to assign to him the authorship of corneal cauterization As

Dr Fox rightly refers to cauterization in corneal ulceration as an epochal step in ophthalmic surgery, which assures its author a permanent place in medical history, it seems to me very desirable that The Journal should correct the error as to the originator of this procedure

It was Dr Martinache, a practicing oculist of San Francisco, who was the first to treat corneal ulcer successfully with the active cautery (as well as iris prolapse and keratitis interstitialis) He published his method, "Ulcers of the Cornea, Treated by the Actual Cautery," in the *Pacific Medical and Surgical Journal,* Nov 18, 1873, p 294, also "De l'emploi du cautere actuel dans les maladies des yeux, et principalement dans les ulceres de la cornee," *Annales d'oculistique,* 1878, **80,** 21 It is true, however, that the procedure was taken notice of and came into general use only after the publication of Gayet in 1877

On the other hand, it sounds rather naive for a writer in the American Encyclopedia for Ophthalmology to remark rather disparagingly that since the active cautery had been in general use for a long time before it must be presumed that it may have been used in this field as well The answer to that is of course that there is no record to that effect—and there are other eggs of Columbus—and may the wholesome fear for those precious, unique, odd millimeters of pellucid tissue never die!

C S G Nagel, M D, San Francisco

DRAFTING PHYSICIANS

To the Editor —Referring to your editorial of Aug 11, 1917, on the selective draft for physicians, it is quite possible that the prevalence of "hysteria" with reference to the providing of adequate medical service for the new Army would be reduced if the acquiring of sufficient physicians was done by such a selective draft as would take into consideration both the individual's wishes, his obligation to community or family, and the government's need for his services

The editorial of August 11 disregards the points which alone make a selective draft desirable It is not the absolute number of men that has been, or can be, obtained for the medical service which is causing, or has caused, anxiety on the part of the government, or "hysteria" on the part of the Committee of National Defense or of the individual physician

The figures quoted in the editorial are correct, but they speak of physicians without qualification as to the age or fitness of these men for active military service.

There are three things that make this selective draft of physicians particularly desirable (1) the best protection of the government's needs, (2) the protection of the community, which should be assured adequate medical attendance, and (3) the protection of the physician himself from decisions which perhaps may have been made at times unwisely through the very "hysteria" referred to above.

The first, the needs of the government, of course includes the second and third The economical use of the medical material is of first importance, if this is to be a long war The continuance of the output of doctors through the conservation of medical students and teachers, and the maintenance of the health of the community at large are as important as the immediate providing of a given number of physicians for military service.

Regarding the number of men available While the figures given in The Journal are satisfactory, if looked at on the basis of the present law providing seven medical men for 1,000 troops, they immediately become quite unsatisfactory if looked at in the light of the probable ultimate decision to provide twenty medical officers per thousand troops It will be difficult to obtain the latter number by the volunteer system without falling into the same error that has brought about so much local distress in Great Britain through lack of medical attention at home

Second, protection of the community Under the volunteer system there can be no control exercised over the reduction of medical men in certain districts to a number fewer than necessary for proper care in that community If the number of men taken from a given locality depends solely on the decision of the individual physician, as to whether he would like to, or should, enter military service, some localities may be devastated, others may be very little affected

An even distribution of the remaining talent is impossible. Under the selective draft of physicians this matter would be properly covered

Third, the protection of the physician himself It must be admitted that the decision of many men as to the relative importance of military or home service has been wrongly made, through the feeling that their example makes it necessary for them to enlist, in spite of the knowledge that their professional capacity makes their services particularly desirable in nonmilitary affairs

A selective draft puts the individual on record as to his qualifications and obligations, but leaves his disposition to the proper authorities It offers the great asset to the individual of the sense of direct service, whether his orders involve civilian or military duties The "tremendous sacrifices" referred to in the summary of the editorial would probably be reduced to a minimum under the action of a selective draft, making the most economical use of medical material at hand, without "coercion," without "threats," but with a view of sending the man best fitted for the service into the Army, and conserving all nonmilitary interests to the country by holding in their proper places men who should not go, but who certainly do go through their anxiety to avoid any possible appearance of selfish avoidance of military duty

Herbert B Wilcox, M.D, New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted, on request.

ACUTE DIARRHEA IN INFANTS

To the Editor —In The Journal, Aug 25, 1917, p 645, it is stated that lactose in from 3 to 5 per cent solution in water should be given Will you please explain to me why, how much, and how it should be given? Also please explain the advantage of starch water Also please explain the methods of administration, indications for, and advantages of giving glucose If this is published please withhold my name

A W P

Answer.—Many infants suffering from acute diarrhea die of acidemia, especially if the diarrhea is accompanied by vomiting Hence to prevent acidemia a little sugar or starch is advisable during the starvation, or insufficient diet, period If acidemic symptoms are present, starch and sugar are essential, and if they cannot be retained by the stomach, small colon injections of these substances are advisable Furthermore, sugar in any form is a food and a stimulant, and it will even strengthen a weak heart in prostration

Lactose (milk sugar) is better than sucrose (cane sugar) because it is less sweet and is less apt to cause fermentation in the stomach and intestine, it is a diuretic also, and in these diarrheal conditions the kidneys act very sluggishly A 3 to 5 per cent solution of lactose in water (or in a thin cereal gruel if such a food is advisable) in 1 or 2 ounce doses may be given at two or three hour intervals The little patient should receive plain water between these feedings, unless more food is advisable

Starch water acts like any other bland starchy food, in other words, it is a food Warm starch solutions are very soothing to every inflamed mucous membrane, whether it is the mouth, the throat, the gullet, the stomach, the intestine or the rectum

Glucose (grape sugar) is not so sweet as sucrose, but it is not so well tolerated as lactose, as it is rather irritant The glucose of the Pharmacopeia is a syrupy liquid, very soluble in water

In acidosis conditions, glucose is valuable as a nutrient enema, given either in water or in milk. A 3 to 10 per cent solution, or even stronger, in milk or in physiologic sodium chlorid solution may be given by the rectum For a child 2 or 3 ounces, repeated every six hours for a few times, would be a fair dose. In older patients the rectal drip method is valuable.

When glucose is absorbed into the blood it is theoretically more quickly ready for muscle use than are other sugars, hence it is frequently used in serious conditions, such as diabetic acidosis, persistent vomiting, or when for any reason food cannot be taken by the stomach

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STOCK AND BOND TRANSACTIONS IN RELATION TO THE INCOME TAX

To the Editor—Please give me some information on the following questions

1 If a physician druggist or lawyer purchases a railroad or other bond at 90 and sells it at 95 how shall the result be treated in his personal income return? If the same person purchases the same kind of security at 90 and sells at 85 how shall the result be treated?

2 If the same person purchases a railroad or other stock at 80 and sells at 100 how shall the result be treated in his personal income return? If the same person purchases a similar security at 80 and sells at 70 how shall the result be treated in his income return?

The ruling now stands that if any one except a stockbroker purchases stock and sells at a profit he must return the result as income, but if he sells at a loss he will not be allowed to deduct such loss *from* his income

Kindly omit my name ———, Chicago

Answer.—1 If a physician buys a $1 000 bond at 90 and sells at 95 he makes a profit of $50 which must be reported as income if the same man later in the year buys a $1 000 bond at 90 and sells at 85 he losses $50, which can be deducted from his total income because he gained $50 during the year in buying and selling a bond In other words his loss is offset by his profit.

2 If a person buys a share of stock at 80 and sells at 100, he must report the profit of $20 as income if the same person later buys a share of stock at 80 and sells at 70 he has the right to deduct his loss of $10 when making his income return However if his losses on these transactions exceed his profits he cannot deduct more than the aggregate profits during the year

Profits made during the year on transactions in stocks and bonds must be returned as income The only deduction which can be made for losses experienced during these transactions is an amount smaller or equal to the amount of profits derived therefrom, in case only losses have been incurred during the year, such losses cannot be deducted from the income

It must be understood that this does not apply to regularly established firms dealing in stocks and bonds as a business

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LITERATURE ON POISON GASES

To the Editor—Will you kindly send me any literature on the subject of poison gases and the treatment used in warfare that you may have at your disposal? S T F, Camp Dodge Iowa

Answer.—The following is a list of recent articles on poison gases and their treatment in warfare

Miller, J Blood Changes in Gas Poisoning *Lancet*, London May 26 1917
Pisano G Toxic Action of Asphyxiating Gases *Gazz d osp*, Dec. 3, 1916.
Ujlaki Injuries from Asphyxiating Gases *München med Wchnschr* Jan. 2, 1917
Irvine Gas Poisoning from Fumes of Explosives *Brit Med Jour* Jan 29, 1916
Boudreau Iodin Internally in Gas Asphyxia *Jour de méd de Bordeaux* September 1916
Treatment of Gas Asphyxia The Journal, April 21 1917, p 1190
Immediate Treatment of Patients Suffering from Chlorin Gas Poisoning—Paris Letter The Journal, Jan. 1 1916 p 45
Lung, G A Asphyxiating Gases in Warfare, *Mil Surg* November 1915
Hill L. Gas Poisoning *Brit Med Jour* Dec 4, 1915

EYE MANIFESTATIONS IN ARSENIC POISONING—ARSENIC IN THE URINE

To the Editor—1 What are the eye manifestations of chronic arsenical poisoning?

2 Is arsenic, in the most minute quantity ever found in normal urine?

Please do not use my name if you publish this W F R

Answer.—1 In the second phase of chronic arsenic poisoning the conjunctiva is often red and inflamed, and symptoms of coryza appear In the prolonged therapeutic action of arsenic, the *first* indications are suffusion and swelling of the conjunctiva and eyelids "Impaired nutrition or toxic actions give rise to polyneuritis, with atrophy of the muscles, disturbance and paralysis of the special senses (blindness)" (Sollmann Torald Manual of Pharmacology 1917, p 740)

2. Arsenic is not found in normal urine, but when ingested, in any manner, slightly less than one fifth is excreted by the kidneys within twenty-four hours The remainder is slowly eliminated by means of the hair and the epidermis

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona Phoenix Oct 2 3 Sec Dr John Wix Thomas, 306 Goodrich Bldg, Phoenix

California Los Angeles Oct 9 13 Secretary, Dr Charles B Pinkham State Capitol Sacramento

Colorado Denver, Oct 2 Sec, Dr David A Strickler, 612 Empire Bldg Denver

District of Columbia Washington Oct 9 11 Sec Dr Edgar P Copeland The Rockingham Washington D C

Georgia Atlanta Oct 9 11 Sec Dr C T Nolan Marietta Ga

Idaho Pocatello, Oct 2 Sec, Dr Charles A Dettman, Burke

Illinois Chicago Oct 9 11 Superintendent of Registration, Mr F C Dodds Springfield

Iowa Des Moines Oct. 9 11 Sec Dr G H Sumner State House, Des Moines

Michigan Lansing Oct 9 11 Sec Dr B D Harison 504 Washington Arcade Detroit

Minnesota Minneapolis Oct. 2 5 Sec, Dr Thomas S McDavitt Lowry Bldg, St Paul

Montana Helena, Oct 2 Sec, Dr William C Riddell Power Bldg Helena

National Board of Medical Examiners Chicago Oct 10 18 Sec Dr J S Rodman 2106 Walnut St Philadelphia

New Jersey Trenton Oct 16 17 Sec Dr Alexander MacAlister, 438 E. State St. Trenton

New Mexico Santa Fe Oct 8 Sec, Dr R K. McClanahan East Las Vegas

New York Albany Buffalo New York City and Syracuse Oct 2 5 Chief Examinations Division Harlan S Horner State Education Bldg Albany

Oklahoma Oklahoma City Oct. 9 10 Sec Dr Ralph V Smith 502 Daniel Bldg Tulsa

Porto Rico San Juan Oct. 2 Sec, Dr M Quevedo Baez San Juan

Rhode Island Providence, Oct 4 5 Sec, Dr Byron O Richards State House Providence

Utah Salt Lake City, Oct 1 2 Sec Dr G. F Harding Templeton Bldg Salt Lake City

Wyoming Laramie Oct 10 12 Sec Dr H E McCollum, Laramie

South Dakota July Examination

Dr P B Jenkins secretary of the South Dakota State Board of Health and Medical Examiners, reports the practical and written examination held at Waubay, July 10-14 1917 The examination covered 15 subjects and included 125 questions The percentage required to pass was 75 Of the 11 candidates examined 10 passed and one failed Four candidates were licensed through reciprocity The following colleges were represented

PASSED

College	Year Grad	Per Cent.
Chicago College of Medicine and Surgery	(1911)	83 1
Rush Med. Coll (1893) 89 7 (1913) 82 5 (1916) 84 4	(1917)	89 5
University of Illinois	(1913)	88 4
State University of Iowa Coll of Homeo Med	(1905)	86.1
University of Louisville	(1912)	81 2
University of Nebraska	(1915)	86 1
University of Vermont	(1908)	88 1

FAILED

St. Louis College of Physicians and Surgeons	(1915)	68 1

LICENSED THROUGH RECIPROCITY

College	Year Grad	Reciprocity with
Rush Medical College	(1913)	N Dakota
University of Illinois	(1915)	Minnesota
University of Minnesota	(1915)	Minnesota
St Louis University	(1906)	N Dakota

Vermont July Examination

Dr W Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the oral practical and written examination held at Burlington, July 10-12, 1917 The examination covered 12 subjects and included 90 questions The percentage required to pass was 75 Eleven candidates were examined, all of whom passed Two candidates were granted reregistration certificates The following colleges were represented

PASSED

College	Year Grad	Per Cent
University of Maryland	(1916)	75 7
University of Vermont (1916) 91 1 (1917) 85 5 86.9 87 3 87 3, 87 4, 88 4 89 90 1		
University of Naples	(1912)	84 5

Book Notices

Food for the Worker The Food Values and Cost of a Series of Menus and Recipes for Seven Weeks By Frances Stern and Gertrude T Spitz, with a Foreword by Lafayette B Mendel, Professor of Physiological Chemistry in the Sheffield Scientific School of Yale University Cloth Price, $1 net Pp 131 Boston Whitcomb & Barrows, 1917

This volume was especially prepared with a view to the needs of the wage earner, and was planned to furnish a series of balanced menus for the use of the visiting housekeeper or social worker Dr Lafayette B Mendel has prepared a foreword to this volume, which he considers a timely attempt at a practical solution of satisfying the needs of the average family, furnishing them with the indispensable nutrients in a ration that is especially palatable, digestible and liberal in quantity, and well within the purchasing power of the family The authors provide tables which Dr Mendel states indicate at once "that there is no superfluity of food, no unwarranted excess of calories suggested" The authors consider first the requirements of the family, a general consideration of the subject is followed by suggestions as to purchasing economically Menus are planned for various days of the week over a period of seven weeks Most of the book is devoted to these tables and diets for forty-nine days Following the tables are recipes for the foods contained in the tables, giving the measure, weight in grams, protein, fat and carbohydrate calories, and cost in cents of each constituent Following these recipes are tables of the cost of supplies as based on calculations during January, July and November of 1916 A special section is devoted to an article on how to build and use a fireless cooker An ingenious table at the end of the book is a practical compilation of the menus for seven weeks so that at a glance the reader can see how to compile the diets for any day

Practical Dietetics, with Reference to Diet in Health and Disease. By Alida Frances Pattee Eleventh Edition Cloth Price, $1 75 Pp 502 Mount Vernon, N Y A F Pattee, 1917

This book, now in its eleventh edition, has been thoroughly revised in accordance with the modern tendencies in the treatment of numerous diseases by modification of the diet It is, of course, especially prepared with a view to the demands of the trained nurse. A copy of state board requirements in dietetics and examinations is furnished with each copy The book is divided into three parts (1) principles of nutrition and food preparation, (2) practical application of principles of nutrition, (3) hospital dietaries, diet in disease, and diet in special diseases In the first part there are general instructions as to estimating food values, feeding the sick, preparation of trays, and numerous tables, weights, measures and food values The second part is devoted wholly to recipes classified as beverages, animal foods, vegetable foods, and nutritious desserts The third part gives in outline form all of the special diets commonly used in hospitals, and then lists diets for various diseases as prepared by different physicians It is an excellent compilation, and will be found a most practical aid for both physicians and nurses

Animal Micrology Practical Exercises in Zoological Micro Technique By Michael F Guyer, Ph D, Professor of Zoology in the University of Wisconsin With a Chapter on Drawing by Elizabeth Smith, Ph D, Instructor in Zoology in the University of Wisconsin Revised Edition Cloth Price, $2 net Pp 289, with 74 illustrations Chicago The University of Chicago Press, 1917

The first edition of this book, primarily a textbook for college students, appeared in 1911 The numerous advances in this subject since that time prompted the authors to undertake a thorough revision A chapter on intestinal microbiology has been added Dr Marshall believes that the word "microbiology" is the best expression for the study of bacteria But he says, "Whether it should be called Protistology, Microbiology, Bacteriology, Mycology, or something else must be left for the future to determine" The various chapters were prepared by twenty-five Canadian and American bacteriologists, including such authorities as M. Dorset, W D Frost, Edward Fidlar, H W Hill, Earle B Phelps, L F Rettger and E E Tyzzer The book is almost encyclopedic, covering every phase of the relation of bacteri organisms to human life Chapters of especial interest are those on the microbiology of milk and milk products, and on the control of infectious diseases

Good Health How to Get It and How to Keep It By Alvah H. Doty, M D Cloth Price, $1 50 net Pp 304, with 32 illustrations New York D Appleton & Co, 1917

This popular treatise is intended to inspire in its readers that cooperation which is essential to combat physical inefficiency, ill health and disease, and, as is said, to inculcate an intelligent appreciation of the fundamental principles of hygienic and sanitary laws and ordinances and a definite sense of responsibility in maintaining bodily health for both individual and social ends It distinguishes between and treats of hygiene, which relates to the person, and sanitation, which concerns the surroundings Its teachings are in the main in accordance with present scientific knowledge and sanitary and hygienic practice

Food for the Sick A Manual for Physician and Patient. By Solomon Strouse, M D, Associate Attending Physician, Michael Reese Hospital, and Maude A Perry, A B, Dietitian at the Michael Reese Hospital, Chicago Cloth Price, $1 50 net Pp 270 Philadelphia W B Saunders Company, 1917

The authors discuss each disease in order to make plain the reasons for the dietary rules that follow Complete diets are given, with instructions in the preparation of the food and the recipes The first chapter considers the general subject of food and its uses, the second is devoted wholly to the subject of diabetes, the Allen treatment being given in detail There are numerous special diabetic menus and recipes Other chapters are devoted to gout, diseases of the kidney, the heart, prepared by Dr Sidney Strauss, the stomach and intestine, the liver and respiratory system, the skin, prepared by Dr Philip Schaffner, fevers, obesity, anemia, scurvy and goiter

Compendium for Medical Officers By Gilbert E Seaman, M D, F A C S, Major and Chief Surgeon, Wisconsin National Guard Paper Pp 165, with illustrations Madison State of Wisconsin, 1917

The information contained in his compendium represents lectures and lessons in the course for medical officers of the National Guard conducted during April and May, 1917 It is composed principally of quotations of laws and orders directly related to the work of the Medical Department, and other information compiled from various standard textbooks on the subject This booklet contains, in brief, much that the medical officer needs to know and can find elsewhere only by referring to a number of different authors It will form an excellent review on modern army organization and methods

Sex Hygiene A Talk to College Boys By Frederic Henry Gerrish, M D, LL D, Professor Emeritus of Surgery in Bowdoin College Cloth Price, 60 cents net. Pp 51 Boston Richard G Badger, 1917

This book, which represents a lecture delivered for a number of years to the freshman class at Bowdoin by Professor Gerrish, has been described as a "scientifically direct" and "ethically elevated" discussion of the subject of sex hygiene It accords accurately with that description It is a convincing presentation of the subject.

Modern Dietetics Feeding the Sick in Hospital and Home, with Some Studies on Feeding Well People. By Lulu Graves, Dietitian, Lakeside Hospital, Cleveland Cloth Price, $2 Pp 214 St Louis The Modern Hospital Publishing Company, 1917

This is a compilation of the articles by Miss Graves of the Lakeside Hospital, Cleveland, which have appeared in the *Modern Hospital* under the general title "Feeding the Hospital" The book contains a good general discussion of dietetics, with chapters containing special diets in disease, instructions for training schools, school work in dietetics, numerous recipes and tables

Social Medicine, Medical Economics and Miscellany

Carbon Monoxid Poisoning in the Steel Industry

J. A. Watkins of the Public Health Service has made a study of carbon monoxid poisoning in the steel industry, and in Technical Paper 156 gives his findings. Carbon monoxid gas occurs in the course of many industrial processes, and aside from fatal and other accidents from "acute gassing" it is a source of ill health in those who are compelled to work in situations in which they are exposed to it in greater or less quantity. In connection with the steel industry the sources of this gas are blast furnaces, gas engines, gas producers, gas-fired boilers, cupola furnaces, dolomite furnaces, dinky engines, and it may even be found in shanties or rest rooms. While the factors of individual resistance and the matter of adjustment of the bodily mechanism to carbon monoxid poisoning enter into the effect on different persons, its constant influence is perhaps always deleterious, and the result is final incapacity. One of the earliest symptoms of carbon monoxid poisoning as described by Watkins is persistent and distressing headache, accompanied at times by nausea and vomiting. Sometimes the headache does not begin until the person has quit work, but in most instances it begins while at work and increases during the day. Giddiness is common, and there may be staggering, muscular weakness, lack of coordination and rapid fatigue. Derangements of digestion are common, with nausea and vomiting, and diarrhea may occur. Among the most serious effects of the poisoning are palpitation and cardiac distress, with occasional dilatation, but the chief effect is on the nervous mechanism controlling the heart. The pulse is irregular, sometimes being slow, at others fast, the irregularity being increased on slight exertion. The oxygen content of the red blood cells is displaced, reduced hemoglobin resulting, with consequent anemia which may be resistant. Nervous symptoms are less frequent, but there may be neuritis with ensuing paralysis or mental derangements such as melancholia or hallucinations. Albumin and sugar may be found in the urine. Persons not entirely incapacitated are physically below par and their industrial efficiency consequently suffers. Careful tests of the air in various situations in the steel industry in which men are compelled to work showed variations in the carbon monoxid content ranging from 0.01 to 3.40 per cent., the high figures being found only exceptionally. In this study no physical examinations were made of employees working in the places from which air samples were taken, but from experimental work on carbon monoxid poisoning and from observations made in serious and fatal cases it has been determined that 0.2 per cent. of carbon monoxid for thirty minutes will be sufficient temporarily to incapacitate the person exposed. Increase in amount of gas or length of exposure would be dangerous. Serious symptoms may result from exposure to as small amounts as 0.01 per cent., especially if the exposed person does much physical work. It is said from the industrial hygienist's standpoint that air where men work containing the last mentioned amount of carbon monoxid is dangerous, and that such a condition should be remedied.

Causes of Death by Occupation

The occupational mortality experience of the Metropolitan Life Insurance Company's industrial department as compiled by Louis I. Dublin, Ph.D., for 1912-1913 is set forth in a reprint by the Bureau of Labor Statistics, U. S. Department of Labor, in Industrial Accidents and Hygiene Series No. 11. The bulletin comprises a study of 94,269 deaths which occurred in 1911, 1912 and 1913 among occupied white males and 102,467 deaths in the same period in white women, aged 15 and over, insured in the industrial department of the company. Each occupation is discussed with reference to the death rate, and tables show the exact figures and percentages by age periods. The table of causes of death in all occupations combined shows some interesting figures. The high points for deaths at ages over 15 were for typhoid fever, 1,390, pulmonary tuberculosis, 19,349, cancer 4,578, cerebral hemorrhage, apoplexy and paralysis, 5,825, organic diseases of the heart, 11,323, pneumonia (lobar and undefined), 6,766, accidental violence, 8,752, all other causes than those named in the table, 18,719; for women, among the 102,467 deaths for the same diseases the figures were: typhoid fever, 1,187, pulmonary tuberculosis, 14,782, cancer (all forms), 10,098, cerebral hemorrhage, apoplexy and paralysis, 8,552, organic diseases of the heart, 15,183, pneumonia (lobar and undefined), 6,034, accidental violence 2,887, all other causes than those named in the table, 22,362. A comparison of deaths from all causes between males and females for the various age periods shows the following percentages: between ages 15 and 24, female 10.1, male 11.8; 25 and 34, female 12.1, male 13.7; 35 and 44, female 13.1, male 16.2; 45 and 54, female 15.4, male 17.7; 55 and 64, female 21.0, male 20.3; 65 and over, female 28.4, male 20.3. The average age at death among males in various occupations was found to be as follows: bookkeepers and office assistants, 36.5; enginemen and trainmen (railway), 37.4; plumbers, gas fitters and steam fitters, 39.8; compositors and printers, 40.2; teamsters, drivers and chauffeurs, 42.2; saloonkeepers and bartenders, 42.6; machinists, 43.9; longshoremen and stevedores, 47.0; textile mill workers, 47.6; iron molders, 48; painters, paperhangers and varnishers, 48.6; cigarmakers and tobacco workers, 49.5; bakers, 50.6; railway track and yard workers, 50.7; coal miners, 51.3; laborers, 52.8; masons and bricklayers, 55.0; blacksmiths, 55.4; farmers and farm laborers, 58.5. It is said that occupations having a low age at death are, in general, either composed of large proportions of young men or characterized by special occupational hazards inducing an early death. On the other hand, occupations having a high average age at death must not necessarily be supposed to exhibit freedom from injurious influences. The condition may result from the high average age of the living.

Medicolegal

Sufficient Complaint and Evidence in Action for Malpractice

(Schillinger et al. vs. Savage (Ind.), 115 N. E. R. 321)

The Supreme Court of Indiana affirms a judgment for $2,000 damages in favor of plaintiff Savage for alleged malpractice by the defendants in reducing and treating a fracture of his left femur. The court says that it was contended by the defendants that the complaint did not show that the negligence charged against them was the proximate cause of the plaintiff's alleged injury, that no allegation was made showing that the alleged negligence was the result of the violation of any duty owing by the defendants to the plaintiff, and that the defendants were employed by the plaintiff to treat this fracture. On the points suggested by the defendants, the complaint, in substance, alleged that the defendants were practicing physicians and surgeons, actively engaged in the practice of such profession, that they held themselves out to the public as practicing physicians and surgeons, that they as physicians and surgeons, both working together, endeavored to reduce the fracture, and entered on the work of setting and adjusting the broken bone, and of treating and caring for it, in all things as skilled and competent physicians should do, that they did unskilfully what they undertook to do and omitted to do things that they should have done as skilful physicians and surgeons, and that solely on account of the negligence, carelessness, unskilfulness, unprofessional and improper manner and method used, the bone was caused to grow and become crooked, deformed and weak. Thus the complaint charged that the alleged carelessness was the proximate cause of the injury complained of. The complaint did not expressly allege the employment of the defendants by the plaintiff, but it did contain the allegations referred to, which, taken as a whole, stated that the defendants, under the circumstances stated, undertook to treat the plaintiff's injury as skilful and competent physicians and surgeons should do, that the plaintiff reposed full faith and confidence in them as physicians and surgeons, and fully relied on the knowledge and skill that they possessed, or should have possessed, as such physicians and surgeons, and fully, carefully and explicitly carried out and performed those acts and things that they counseled, instructed and advised him to do Thus a relationship came into existence between the defendants and the plaintiff, which imposed on the former the duty to exercise the average degree of skill possessed and exercised in like cases by members of their profession practicing in similar localities, and out of such relationship grows an obligation in favor of the patient, if injured by a failure to exercise said degree of skill and care The complaint was not defective in the particulars contended for

The record showed evidence tending to support the cause of action alleged It was also true that a considerable amount of the evidence tended to support the contention of the defendants, there was, however, a *strong conflict in the evidence*, and these matters were submitted to and passed on by the jury This court cannot weigh such conflicting evidence Nor was there error in a refusal to instruct the jury that under the law the defendants were presumed to have exercised reasonable care and skill in setting and treating the plaintiff's fracture It is the province of the jury to draw presumptions of fact from the evidence or from a given state of facts, and it is error for the court to instruct it as to what inferences it shall draw The question of whether the *defendants exercised reasonable* care and skill in treating the plaintiff's fracture was properly left to the jury

An Invalid Law as to Removal of County Health Officers

(Mississippi State Board of Health vs Matthews (Miss), 74 So R 417)

The Supreme Court of Mississippi, Division A, in a very short opinion, affirms a decree in favor of complainant Matthews, who filed a bill in chancery to enjoin the state board of health from putting into effect an order removing him from the office of county health officer of a county The court holds that Section 175 of the state constitution, which provides that all public officers, for wilful neglect of duty or misdemeanor in office, shall be liable to presentment or indictment by a grand jury, and, on conviction, shall be removed from office, or otherwise punished as may be prescribed by law, provides the exclusive method by which a public officer may be removed from office Consequently, Section 2490 of the Mississippi Code of 1906, so far as *it authorizes the state* board of health to remove a county health officer, is void

Physicians and Fees Under Workmen's Compensation Act

(In re Huxen (Mass), 115 N E R 426)

The Supreme Judicial Court of Massachusetts says that the only questions raised by this appeal related to the obligation of an insurer under the workmen's compensation act to pay the fees of a physician to an injured employee. The first point to be decided was whether the physician can be a party to a proceeding under the act It has been held that the questions relating to services of physicians are proper for *consideration* under the act, and since the fees are to be fixed by a committee of arbitration in case of disagreement, it seems to follow necessarily from the terms of the act that, when the physician is the party interested in that matter, he may be a party to the proceedings

The employee in this case was injured by being burned with live steam At his request he was treated at his home for a period of two weeks, after which he was able to go from his home to the physician's office and was treated there The entire evidence about the kind of treatment after the expiration of the two weeks was from the physician, that when the employee came to his office he had to bandage around the chest and shoulder and clean the area of granulation, that there was a back area in which there was proud-flesh that had to be cleaned off The question was whether this constituted an unusual case within the meaning of the statutory provision that during the first two weeks after the injury, and, if the employee is not immediately incapacitated thereby from earning full wages, then from the time of such incapacity, and in unusual cases, in the *discretion of the board*, for a longer period, the association shall furnish reasonable medical and hospital services, and medicines, when they are needed It is manifest that the legislature did not intend to impose all expenses of medical attendance on the insurer The obligation to provide such attendance as an absolute duty is confined to two weeks after the injury It is manifest that in the aggregate there *must be many cases in which* medical attendance may be required for a longer period It *is not in an ordinary case requiring* longer medical attendance that the discretion of the board may be exercised to charge this attendance to the expense of the insurer It is only in "unusual cases" that it may do so There would be grave doubt whether a case in which the employee is able to go from his home in Cambridge to an office in Boston could be so unusual as to be within the purview of the act But there was another circumstance which must be considered in this case

After there had been several treatments at the physician's office in Boston, the insurer wrote to the employee offering to pay one dollar per visit to the physician, or to provide its own physician free of charge That letter was shown by the employee to the physician, who continued to treat him It is manifest that, after the letter was shown to him, *he knew the* attitude of the insurer which it was sought to hold liable for his services There was no intimation that the physician proffered by the insurer free of charge to the employee was not competent and a proper person to treat the employee The fact that the employee was able to go to the office for treatment made it plain that the case was no longer critical It was not then a case of emergency Under the conditions disclosed, there was no "other justifiable cause" for the continued attendance of the first physician after the date of the letter from the insurer to the employee If he chose to continue to treat the employee at the expense of the insurer under these circumstances, he must do so on the terms offered Wherefore the court orders that the amount decreed to be due to the physician be reduced to $73

Presumption from the Commission of Numerous Abortions

(People vs Schultz Knighten (Ill), 115 N E R 140)

The Supreme Court of Illinois holds that, in a prosecution for the murder of a woman by the performance of an abortion on her, evidence that the defendant *committed* an abortion on another woman which resulted in her death is competent for the purpose of showing the knowledge of the defendant and her guilty intent Though a single abortion may have *been committed* for a sufficient reason and with no criminal *intention*, repeated acts of that character may create a reasonable presumption that they were not done to preserve life or ignorantly, but with criminal intent and knowledge, and the more numerous the acts the stronger, ordinarily, will be the presumption

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Society Proceedings

COMING MEETINGS

Amer Acad of Ophthal and Oto Laryng, Pittsburgh, Oct 29 30
Am Assn for Study and Prev of Inf Mort, Richmond, Va, Oct 15 17
American Association of Railway Surgeons, Chicago Oct 17 19
Am Assn Obstetricians and Gynecologists, Newark, N J, Sept. 17 19
American Roentgen Ray Society, New York Sept 20 22
Colorado State Medical Society, Colorado Springs, Sept 25 27
Delaware State Medical Society, Middletown, Oct 8 9
Indiana State Medical Association, Evansville, Sept. 26-28
Kentucky State Medical Association, Louisville, Oct. 16 18
Medical Association of the Southwest, Kansas City, Oct 15 17
Minnesota State Medical Association, St Paul, Oct 10 12
Mississippi Valley Medical Association, Toledo, O, Oct 9 11
Missouri Valley Medical Society, Lincoln, Neb, Sept 20 21
Nevada State Medical Association, Reno, Oct 18 19
New Mexico Medical Society, Las Cruces, Oct. 4 6
Pennsylvania State Medical Society, Pittsburgh, Sept 24 27
Southern Medical Association, Memphis, November 12 15
Vermont State Medical Society, Barre, Oct 11 12
Virginia State Medical Society, Roanoke, Oct 23 26
West Virginia State Medical Association, Fairmont, Oct 2-4
Wisconsin State Medical Society, Milwaukee, Oct. 3 5

Current Medical Literature

AMERICAN

Titles marked with an asterisk ( ) are abstracted below

American Journal of Public Health, Boston

August III No 8

1 Sanitation in Some Canadian Barracks and Camps J G Fitzgerald, Toronto, and J W S McCullough Ontario—p 655
2 Fallacy of Reading Accurately Gas Percentages in Fermentation of Lactose Peptone Bile and Lactose Broth W W Browne New York—p 663
3 Gasoline Engine Exhaust Gas Poisoning R P Albaugh, Columbus Ohio—p 664
4 De Lousing Measures of Santa Fe Railway System M I Boyd Iowa City Ia—p 667
5 Saving Sight Saving Citizens E. M Van Cleve New York—p 675
6 Activated Sludge Experiments at University of Illinois F Barton F W Mohlman and J I Schnellbach Urbana Ill—p 677
7 Ammonia from Action of Caustic Soda on Organic Matter Source of Error in Determination of Nitrates in Sewage and Sewage Effluents by Reduction Method S DeM Gage and H H Arder on Providence R I—p 689
8 Bacterial Examination of Milk F H Slack Brookline—p 690
9 Synoptic Report on Comparative Sanitary Survey of Two Massachusetts Cities M P Horowitz Cambridge.—p 698

American Review of Tuberculosis, Baltimore

August I No 6

10 *Diagnosis of Tuberculosis in Military Service G E Bushnell U S Army—p 325
11 *Pleural Reaction to Inoculation with Tubercle Bacilli in Vaccinated and Normal Guinea Pigs R C Paterson Saranac Lake N Y—p 353
12 Public Health Work of Great Life Insurance Company H J Howk Mount McGregor N Y—p 372

10 Tuberculosis in Military Service—As a first principle Bushnell lays down the axiom that the examination must be confined to objective fact to physical diagnosis The examiner may listen to the applicant s story but should not give weight to statements not supported by physical signs It is frequently observed that the size of tuberculous foci is found at necropsy to be greater than that determined during life by clinical methods there being recent extensions of the tuberculous process which have escaped detection Now if the numerous foci of miliary tuberculosis and the recent small foci surrounding an old lesion can not be discovered in their early stages what asks Bushnell authorizes us to believe that it is possible to detect the incipient lesion of the apex by auscultation and percussion before rales have made their appearance? The physical examination for the presence of pulmonary tuberculosis as practiced by the specialist with a view to determine the precise extent, age and probable prognosis of the lesions including as it should a careful record of past history and of all abnormal signs present, is a time consuming affair For military purposes however in which the object is to reject from further consideration cases with well marked positive findings much can be omitted from the examination and its duration can be correspondingly abbreviated All that is absolutely necessary is to determine the presence of a tuberculous lesion of sufficient size and activity to constitute a cause for rejection This can be done in well marked cases of active tuberculosis in a few minutes in some cases in half a minute To demonstrate the absence of disease naturally requires a longer time.

In order to determine the time requisite for a preliminary examination twenty-five test cases were examined by Bushnell by the auscultatory method aided by percussion auscultation of voice, etc., whenever thought necessary the object being to determine the least time which was necessary to get an approximation to the correct diagnosis The time consumed for the whole examination was one and one-half hours No special effort was made to shorten this time, which was spent to a considerable degree in consulting the case cards after the examination had been completed in the individual cases in waiting for patients to remove their clothing, etc. The actual time of physical examination was fifty-eight minutes, the time for each patient varying from one and one half to two and one-half minutes The diagnosis, not only as to the presence or absence of tuberculosis but also as to the extent of the lesions present, was made correctly as determined by comparison with the cards in twenty-two cases, in two cases the presence of an old pleurisy in which there had been effusion at an earlier time was not recognized and in one case a cavity was erroneously diagnosticated by carelessness in failing to notice that the patient was breathing noisily The patients were as a rule afebrile In most of them there were no signs of present activity, in one there was no evidence of clinical tuberculosis They were, in short such cases as might very well have been presented to the examiner of recruits Bushnell believes that if all recruits were examined with no more care than was given to the examination above reported the number of patients treated at Fort Bayard would be reduced by at least one fourth and very probably by a much larger percentage

The author describes in detail his method of making a rapid diagnosis by auscultation and concludes his paper by setting forth the following topical variations of normal signs 1 Harsh breathing slightly prolonged expiration over right apex posteriorly without other signs is not cause for rejection (proximity of bronchus) The same signs anteriorly over the right apex if slight are not necessarily pathologic 2 The same signs second interspace right anteriorly close to sternum are not a cause for rejection (proximity of right main bronchus) If these signs are found outward and downward from this point they indicate a lesion 3 Increased vocal resonance and slightly harsh breathing immediately below center of left clavicle are occasionally found They do not indicate a lesion in the absence of other signs 4 Fine crepitations over sternum or heard when stethoscope touches edge of that bone are not pathologic 5 Clicks heard during strong breathing or after cough in the vicinity of the costosternal articulations (below the first) in the absence of other signs are not indicative of a lesion 6 Sounds resembling rales at base of lung especially in right axilla are not pathologic if strictly limited to the base and to inspiration and not accompanied by other signs 7 The same is true of sounds resembling rales over the lingula (heart apex) heard on cough 8 Prolonged expiration at left base posteriorly limited to this region, is not abnormal 9 Slightly prolonged expiration at about the angle of the scapula disappearing a short distance above this point, is not a sign of a lesion, if alike on both sides (transmission from normal bronchi) and not accompanied by other signs

11 Inoculation with Tubercle Bacilli.—In attempting to do some experimental work with pleural effusions, Paterson found that the pleural cavity of rabbits inoculated with virulent tubercle bacilli after a pneumothorax had been established did not respond to the inoculation with the development of fluid It was further discovered that a second inoculation of bacilli into the same pleural cavity some weeks later resulted in a rapid accumulation of bloody serous exudate, rich in leukocytes The problem was therefore suggested as to whether a sensitization of the pleura prior to inoculation was necessary for the development of an effusion and whether this sensitization might not be a part of a general change in reaction produced by an already existing tuberculosis Hence Paterson endeavored to determine the differences in reaction following the inoculation of virulent tubercle bacilli into the pleura of normal guinea-pigs and of those which have been previously vaccinated with bacilli of low virulence and as a result have developed a localized glandular tuberculosis and show a tuberculin sensitiveness

These experiments showed that intrapleural inoculations of tubercle bacilli in tuberculous guinea-pigs result in an exudation of serum, leukocytes, red blood cells and fibrin Similar inoculations in normal guinea-pigs elicited no noticeable pleural reaction The acute pleural reaction in tuberculous animals tend to localize the infection which is rapidly disseminated in normal controls The length of life after intrapleural inoculation is much greater in tuberculous than in normal guinea-pigs The effusions are capable of causing tuberculosis in normal guinea-pigs although no bacilli can be found Tubercle bacilli are probably absorbed through both the parietal and visceral pleura Fibrous adhesions are formed by the organization of the fibrin Clinical pleural effusions are caused by the infection of an allergic pleura

Arkansas Medical Society Journal, Little Rock

August, XIV, No 3

13 Deductions from Three Hundred Surgical Cases M D Ogden, Little Rock —p 51
14 Urticaria C T Drennen, Hot Springs —p 57
15 Electrotherapeutics J K Smith, Texarkana —p 59

Boston Medical and Surgical Journal

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16 Medical Profession and Social Progress A F Downing, Cambridge —p 237
17 Studies of Infant Feeding Mineral Constituents (Ash) of Milk A W Bosworth and H I Bowditch, Boston —p 248
18 Basic Principles in Symptomatology of Bright's Disease H Elwyn, New York —p 251
19 *Epidemic of Dysentery at Boston State Hospital, Due to Member of Paratyphoid Enteritidis Group M E Morse and G Tryon, Boston —p 255

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20 The Hospital Follow Up System C C Simmons, Boston —p 275
21 Uniformity in Hospital Morbidity Reports E A Codman, Boston —p 279
22 Standardization of Hospitals J G Bowman, Chicago —p 283
23 Efficiency Tests Applied to Attending and House Physicians of Cook County Hospital, Chicago J A Capps, Chicago —p 286
24 Significance of Persistent Pain or Other Symptoms Referred to Peripheral Nerves H W Wright, San Francisco —p 287
25 Treatment of Visceroptotic R F Chase, Portland, Me —p 290
26 Relations of Prenatal and Postnatal Work. M M Davis, Jr, Boston —p 294

19 **Epidemic of Dysentery**—Morse and Tryon describe an acute very contagious disease, of short incubation period appearing in three forms the dysentero-septicemic-pneumonic, the pure dysenteric, and diarrheal The conditions found in the virulent fatal cases were a membrane ileocolitis, septicemia and a pneumonia with miliary abscesses and large areas of necrosis The severer forms of the disease occur in debilitated persons Immunity is of short duration, and recurrences (usually mild) are frequent The causative organism is a member of the paratyphoid *enteritidis* group, more closely allied, as shown by agglutination tests, with paratyphoid B, *B suipestifer* and *B enteritidis* than paratyphoid A, but not identical with any of them The disease was limited to certain buildings of the Boston State Hospital The epidemic was preceded by mild diarrheas among patients and attendants, then broke out in violence in one ward, and was passed from person to person by contact. The source of the infection was not definitely determined The close affinity of the organism with certain members of the group (suipestifer and enteritidis) which are associated with animals, suggests the possibility of such an origin No evidence was obtained connecting the human epidemic with an outbreak of hog cholera which had prevailed in the piggery during the previous summer, but the pathologic anatomy of the two diseases presents certain features of similarity The hypothesis is suggested that the infection was introduced by the contamination of food in the refrigerator by rats, the infection appearing first as mild cases of diarrhea, then as an outbreak in a single ward, due probably to gross contamination of the food by a human carrier, the difference in the severity of the disease depending on the physical condition of the persons attacked, and possibly also on the rapid transfer of the virus

Prophylactic inoculation will not suppress the disease among feeble patients, although it may have some influence in mitigating its severity Among strong persons, however it appears to be of more value, in reducing both the number of cases and the type of the disease Vaccine treatment during the disease has given good results A polymorphonuclear hyperleukocytosis occurs after both the prophylactic and therapeutic administration of vaccine The leukocytic reaction is more marked in the stronger normal individuals than in the feeble ones who have had the disease and recurrent attacks Agglutinin formation in the disease is very moderate Agglutinins for the organism persist in some cases as long as fourteen and seventeen months after the original attack, when there has been no recurrence After prophylactic vaccination, low titers have been obtained up to eleven months Intradermal tests with concentrated glycerin broth cultures of members of the paratyphoid *enteritidis* group have given unreliable and conflicting results Tests with powdered cultures are to be undertaken

Canadian Medical Association Journal, Toronto

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27 Past and Present F J Shepherd, Montreal, Que.—p 673
28 Modern Conception of Public Health Administration and Its National Importance C J Hastings, Toronto —p 684
29 Study of Certain Psychogenetic Conditions Among Soldiers C K Russel —p 704
30 Cholecystectomy vs Cholecystostomy (Technic and Complications) Treatment of Gastric and Duodenal Ulcer, Relationship of Thyroid to Exophthalmic Goiter G W Crile, Cleveland —p 721

Florida Medical Association Journal, Jacksonville

August IV, No 2

31 Volkmann's Contracture. J K Simpson, Jacksonville —p 33
32 Advantages of Proper Handling of Acute Appendicitis E Jelks, Jacksonville —p 37
33 Indications and Abuse of Cesarean Section F J Waas, Jacksonville —p 39
34 Sigmoid M H Smith, Jacksonville —p 43
35 Factors in Union and Use of Traction Suture Plates in Abdominal Incisions R R Kime, Lakeland —p 45
36 Food Value and Wholesomeness of Self Rising Flour H O Snow, Tampa —p 48

Georgia Medical Association Journal, Augusta

August VII, No 4

37 Intensive Fattening Some Results in Abdomen W W Blackman, Atlanta —p 61
38 Importance of Careful Examinations Before Advising Surgical Operations E C. Davis —p 65
39 Review of Two Hundred Operations for Acute Abdomen, with Fifteen Deaths. R M Harbin and W P Harbin, Rome —p 67
40 Traumatic Rupture of Viscera without External Wound F K Boland, Emory University —p 74

Indiana State Medical Association Journal, Fort Wayne

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41 Conservative Treatment of Penetrating Wounds of Eyeball A E Bulson, Jr, Fort Wayne —p 307
42 Leprosy in Indiana, Report of Case S L Egart, Indianapolis —p 312
43 First Aid Work of United States Bureau of Mines A F Knoefel, Terre Haute.—p 314
44 Review of Prescription Work C N Howard, Warsaw —p 317

Journal-Lancet, Minneapolis

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45 *Uremia, Etiology, Types and Diagnosis L G Rowntree Minneapolis.—p 491
46 Certain Methods Used in Laboratory Investigation of Acidosis and Renal Function J M Northington, Minneapolis.—p 496
47 Present Status of Acute Infections of Kidney J S Gilfillan and W A Dennis, St Paul —p 498
48 Pituitary Extract A A Conley, Cannon Falls —p 505
49 Gastric Ulcer J C Baker, Ramona, S D —p 507

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50 Fractures at Elbow E P Quain, Bismarck, N D —p 521
51 Wire Filigree in Closure of Large Hernias H B Sweetser, Minneapolis —p 530
52 Neglected Surgery R S Westaby, Madison, S D —p 534
53 *Acute Postoperative Obstruction and Paresis E H Beckman, Rochester —p 535
54 Medical and Surgical Nomenclature F W MacManus, Williston, N D —p 538
55 If Your Son Is to Become Specialist in Practice of Medicine How Shall He Secure His Training? F C Todd, Minneapolis —p 541

45 **Uremia, Etiology, Types and Diagnosis**—Rowntree says he has repeatedly seen acute exacerbations of uremia manifestations follow the administration of high protein diet in chronic nephritis, while, on the other hand, he has seen chronic uremia disappear on low protein diet. As a result of personal studies he is thoroughly convinced that acidosis is *not* responsible for uremia The acidosis can be corrected without the disappearance of uremia, and death from uremia may still occur Except in acute uremia he has yet to see anything but temporary relief from the correction of the acidosis In the vast majority of cases the treatment adopted is based on

the theory of retention of products of metabolism Indeed he feels that it is wise to pursue this line of treatment in every case of uremia When edema of the brain is present the question of mechanical relief of cerebral pressure may need to be considered Lumbar puncture may be of the greatest value in cases with marked headache dependent on cerebrovascular changes If acidosis coexists alkali should be administered but only to the point of correcting the acidosis not indiscriminately in all cases of uremia nor in the large amounts recently advocated In every case of uremia it is the physician s duty to determine if possible the underlying cause and to treat the case accordingly

53 **Acute Postoperative Obstruction and Paresis**—Occasionally Beckman says splendid results may be obtained with eserin or pituitary extract On the other hand it is often disappointing not to obtain the results expected When all other results fail an enterostomy at the lowest point of the distended intestine is often a life saving measure as in the case of a boy who had an acute attack of appendicitis An unsuccessful search was made for the cecum through a small McBurney incision This was closed and a midline incision made After considerable manipulation and packing off of the intestine it was found that the entire cecum had a very long mesentery and lay on the left side of the abdomen The appendix which was reddened but not ruptured, was removed and the abdomen was closed without drainage The patient had an apparently normal convalescence the first forty-eight hours At the end of that time he appeared exhausted the pulse rate began to increase, he vomited and no result was obtained with enemas The abdomen was flat, except possibly for a little distention in the epigastrium Routine washing of the stomach every four hours was carried out. After the third day oil was given through the stomach tube and at the next washing almost the entire amount was obtained Condition unchanged

There was no abdominal distention no complaint of pain, and no temperature but the pulse rate increased and exhaustion increased in spite of salines given by bowel On the fourth day at 5 p m. the midline incision was reopened The abdominal fluid had not increased, nor was there any evidence of inflammation in the abdomen The jejunum was enormously distended from its beginning for a distance of about 4 feet At this point, and without any evidence of adhesions the distention ended abruptly the remainder of the small intestine being entirely collapsed and contracted An enterostomy was done at the lower point of the distended intestine, and a good sized rubber catheter introduced into the bowel Almost no gas escaped through the catheter During the first night 2 or 3 ounces of secretion came through the catheter The next day this amount increased, and twenty-four hours after the second operation a small amount of gas was passed by the bowel Vomiting ceased, and convalescence progressed from this time on Beckman is convinced that this patient would have died if an enterostomy had not been performed

Journal of Cancer Research, Baltimore

July II No 3

56 *Alleged Increase of Cancer W F Willcox New York—p 267
57 Tumors of Kidney in Rabbits. E. Scott, Cleveland—p 367
58 *Distribution of Immune State in Mice Second Communication on Homologous Immunity to Malignant Mouse Tumors M Tsurumi—p 373
59 *Sulphur Metabolism in Carcinoma M Kahn Pittsburgh—p 379
60 *Traumatic Rhabdomyosarcoma Following Successive Fractures of Femur H. R Muller, New York.—p 393
61 *Comparative Pathology of Cancer of Stomach with Particular Reference to Primary Spontaneous Malignant Tumors of Alimentary Canal in Mice M Slye H F Holmes and H G Wells Chicago—p 401
62 *Trauma and Primary Mouse Tumors M C Marsh Buffalo—p 427
63 Tumor Immunity in Chick Embryo H N Stevenson New York—p 449

56 **Alleged Increase of Cancer**—The reported mortality from cancer is increasing in almost every part of the world from which reports exist but Willcox's study shows that the real mortality, if it is increasing at all, is certainly not increasing with equal rapidity In England and the United States the increase in cancer mortality is parallel with the increase in mortality from appendicitis and both may be due entirely, as they certainly are in large degree, to the improvement of diagnosis The cumulative evidence that improvements in diagnosis and changes in age composition explain away more than half and perhaps all of the apparent increase in cancer mortality rebuts the presumption raised by the figures and makes it probable, although far from certain, that cancer mortality is not increasing

58 **Distribution of Immune State in Mice**—The immune state produced by Tsurumi in mice by a single subcutaneous inoculation of mouse embryoskin (0 05 c c) has been shown to extend to an internal organ—the lungs and to the peritoneal cavity In other words, resistance is not localized, but is distributed all over the body of immunized animals This fact allows the assumption of the presence in immunized animals of some substance which is able to cause resistance and which is distributed throughout the body of such animals

59 **Sulphur Metabolism in Carcinoma**—In carcinoma there is generally observed an increase in the percentage of neutral sulphur in the urine This may be ascribed to a lessened power of oxidation or to an increased destruction of tissue with the failure of the organism to oxidize the broken down products to the sulphate (oxidized) state Kahn found that the colloidal nitrogenous substances are increased in the urine of cancer patients as well as in the urine of anemic, diabetic and syphilitic individuals, etc. It has been the experience of the author that the determination of this fraction in conjunction with the Salomon Saxl test for the so-called 'neutral sulphur' is of great aid in the diagnosis of carcinoma if both of these tests are positive A negative result with either the Salkowski-Kojo test or the Salomon-Saxl test detracts very much from the significance of the results so far as carcinoma is concerned

60 **Traumatic Rhabdomyosarcoma**—Clinically, Muller's case is of interest in that the tumor developed apparently in a femur which had twice been the seat of a fracture, and which later had been treated for periostitis Pathologically it is noteworthy in that its morphology differs strikingly from that of a bone sarcoma, and that it must be regarded as a tumor arising in muscle tissue

61 **Cancer of Stomach**—A review of the literature made by the authors shows that in all animals except man, carcinoma of the stomach is extremely uncommon and the recorded cases found in the lower animals are here collected and discussed briefly In animals with a rumen or in which the cardia is lined by squamous epithelium carcinoma of this tissue is observed much more frequently than in the glandular gastric mucosa Only four cases of carcinoma of the stomach of mice could be found recorded in the literature, all in the squamous cardiac portion In 16 500 necropsies on mice dying natural deaths at all ages in this laboratory, the authors have found three squamous cell carcinomas of the cardia and one tubular pyloric carcinoma, the latter apparently resulted from the presence of a hair ball in the stomach One gastric neoplasm resembling closely a sarcoma, was also observed Carcinoma of the intestine is also very rare in mice, the only case observed in the Slye stock being a squamous cell carcinoma arising in the external surface of a chronically prolapsed rectum The significance of man's susceptibility to carcinoma of the stomach is not yet known but probably it depends on the heat of his food or the condiments employed in seasoning it or on the chemical changes produced by cooking

62 **Trauma and Primary Mouse Tumors**—Investigations were begun by Marsh in the hope of finding a stimulus, injury or irritation which, when applied to the mammary gland of the mouse would incite neoplastic proliferation and lead to the development of true tumors The first trials aimed to open the skin, in imitation of the bites and other injuries to which mice are naturally liable, and through which the mites of the skin would, though probably involuntarily, find their way beneath the skin and thus be in a position to influence the mammary epithelium. Needle scratches and punctures were entirely negative The skin in the mammary regions of thirty-three mice was slit in many places with a sharp scalpel

point. One tumor resulted after three months The skin of eighty-two old females past the breeding age was punctured in many places with a jeweler's file, the rough surface of the file serving to scrape the edges of the wound and carry in scurf, parasites, and sometimes hairs In three experiments, a total of six tumors in six mice resulted between the first and fifth months Implants of skin with hair stubble proved negative, likewise injected skin scrapings and subcutaneous implants of living mites

Injection of mites ground in salt solution into seven spontaneous tumor mice were made Three of the seven mice developed each an additional tumor, two of these became recognizable fifteen days after injection, and one of them was in the field of the injection The other mouse developed an additional tumor after four months, at a distance from the injection Water injections through the nipples, subcutaneous injections of tap water, mammary injury and tap water injections were negative Nine normal mice were fed with skin scrapings containing living and dead mites All the mice died within forty-four days, and only one showed definite mammary reaction in the form of a few small adenomas One had a small lung adenoma Pressure injury to the mammary gland was negative Injury after feeding with mouse skin was negative Attempted air injections into the mammary alveoli in five normal breeding female mice were positive One died after eighty-one days, it had had no tumor at the last examination, about one month before death The other four all developed mammary growths between the third and sixth months after injection Air injected subcutaneously, and mammary injury in presence of air were negative Injury to the nipples showed that in eighteen virgin mice no tumors resulted, but ten females 13 months old, soon after their first and only parturition, were treated in the same way, save that nearly all the nipples in each mouse were pricked, half these mice had lost their young, while the others were nursing their litters Six mice survived after five months, during which three have developed tumors between the sixth week and the third month, in the region of the pierced nipples

More than 1,100 mice have been used in over sixty experiments in irritation and trauma, and in the main with negative results These experiments as a whole might be summed up as tending strongly to exclude acarine parasites of the mouse from any concern with the origin of mouse tumors, as showing how extensive a series of acute injuries fails to inaugurate tumors, and in indicating a simple and definite form of trauma which seems to have a material effect in raising tumor incidence in old breeders Incidentally one may further infer that the effective factor hidden in any mechanical procedure which appears to start tumors is a very subtle one, and that its isolation or identification is a very difficult task.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

August, X, No 2

64 Toxic Action of Opium Alkaloids Individually and in Combination with Each Other on Paramecia D I Macht and H G Fisher, Baltimore.—p 95

65 *Toxicity of Phosphates in Relation to Blood Calcium and Tetany C Binger, Baltimore—p 105

66 *Perfusion of Mammalian Medulla, Action of Ethyl Alcohol D R. Hooker, Baltimore—p 121

67 *Experiments with Succinate and Its Hydroxy Derivatives on Isolated Frog Heart W Salant, A E Livingston and H Connet, Washington, D C—p 129

68 *Endermic Reactions Experiments on Local Urticaria T Sollmann, Cleveland—p 147

65 **Toxicity of Phosphates**—The results of Binger's studies show that solutions of orthophosphoric acid and its sodium salts, when injected intravenously in dogs, cause a diminution in the amount of calcium in the serum The degree of diminution in calcium content or serum depends on the amount of phosphate introduced When the phosphate solution is injected in amounts equivalent to 150 gm phosphorus per kilogram, the serum calcium drops from its normal level of 10 mg per 100 c c to approximately 6 mg At this level a condition of tetany supervenes, provided the neutral or alkaline salts have been injected With acid phosphate solutions, the calcium drop occurs unaccompanied by tetany The region at which the phosphate solutions become toxic when injected in the doses here employed lies in the neighborhood of P 6 0

66 **Perfusion of Mammalian Medulla**—Perfusion of the medulla in the dog with defibrinated blood to which ethyl alcohol has been added to 0 025 per cent, stimulates respiration If the amount of alcohol be increased to 0 1 per cent, the respiratory response is greater than with 0 025 per cent alcohol If the amount of alcohol be further increased to 0 2 per cent, a transitory stimulation occurs which is followed by a prolonged inhibition of respiration Concomitant observations on the heart rate and arterial blood pressure indicate that the former is not affected while the latter is raised

67 **Experiments with Succinate on Isolated Frog Heart.**—The chief conclusions drawn by the authors are as follows sodium succinate and its hydroxy derivatives are cardiac depressants, but weak solutions of some of the isomers of the salts of tartaric acid may produce stimulation The toxicity of the derivatives of succinate increases with the entrance of hydroxyl groups Stimulating after effects were observed in experiments with tartrates In experiments with repeated perfusions the depressing effects observed at first gradually diminished and stimulation was finally observed The evidence obtained in this investigation contradicts the calcium precipitation theory advanced in explanation of the mode of action of tartrates and other organic salts whose calcium compounds are soluble with difficulty The point of action of the salts is probably nervous in origin and not muscular Simultaneous stimulation of inhibitory and motor mechanisms is suggested to explain the different and opposite effects produced by some of the compounds The sodium salt of levotartaric acid was the most active of all the isomers of tartaric acid

68 **Endermic Reactions**—Sollmann's conclusions are as follows Local urticarigenic agents do not sensitize the skin at a distance toward water The local application of morphin to the scarified skin produces a distinct though limited analgesia The severity of urticarial reaction does not decrease in strict proportion to the dilution However, the difference of the urticarial reaction is sufficient to show the rapid deterioration of dilute histamin solutions The combination of several weak urticarigenic agents does not produce marked potentiation The morphin urticaria is not materially influenced by the local application of calcium or barium chlorid Epinephrin and morphin are somewhat antagonistic in their vascular actions Morphin may therefore remove the epinephrin blanching, but epinephrin cannot remove the morphin edema effectively The fading of a drug urticaria is not due to rapidly acquired tolerance. Repeated applications do not increase the severity of the urticaria beyond a certain point, but this seems to be due to inherent limitations in the drug irritation Excised human skin is not altered by the usual urticarigenic agents

Medical Record, New York

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69 Treatment of Chronic Bright's Disease. J M Anders, Philadelphia—p 311

70 Are There Subjective Pains? M Solomon, Chicago—p 314

71 Hospital Social Service in New York N G Seymour, New York—p 320

72 Should We Be More Conservative in Use of Artificial Pneumothorax? J R Williams, Asheville, N C—p 323

73 Care of Feet in Pregnancy G Gellhorn, St Louis—p 326

74 Case of Bothriocephalus Infection C G McGaffin, Kings Park—p 327

75 Massage and Exercises in After Care of Poliomyelitis F Berg, New York—p 329

Missouri State Medical Association Journal, St Louis

August, XIV, No 8

76 *Cystoscopic Examination of Bladder in Psychoses. F M Barnes, Jr, and J R Caulk, St Louis—p 329

77 Transplantation of Fat, Fascia and Living Tissue in Surgery Report of Experiences in Various Conditions A B Kanavel, Chicago—p 333

78 Report on Medical Education A W McAlester, Columbia—p 340

79 Plea for Establishment of Standardized County General Hospitals J C Nifong Columbia—p 343
80 Methods and Results of Educational Work in Control of Cancer I J Taussig St Louis—p 347
81 Nephritis and Endocarditis Report of Case O H Brown, Phoenix Ariz—p 349
82 Some of Secretary s Duties and His Part in Maintaining an Interesting County Society J F Roberts Bolivar—p 351

76 **Examination of Bladder in Psychoses**—In a second series of cases of psychoses examined by Barnes and Caulk the neurologic findings were such as to lead to the expectation of a positive bladder picture in 23 per cent whereas this positive picture was found in 54 per cent The authors emphasized the fact that the appreciation of this bladder picture bears an important surgical significance as its recognition will often spare an unnecessary operation and lessened postoperative incontinence They believe that the results of their work quite definitely indicate that the cystoscope has an important field in the differentiation of functional from organic diseases of the central nervous system

New York Medical Journal

August 25 CVI No 8

83 Value of Roentgen Rays in Diagnosis of Carcinoma of Stomach R H Boggs Pittsburgh—p 341
84 Case of Heredocerebellar Ataxia (?) Presenting Unique Features F X Dercum Philadelphia—p 346
85 New Combination Observation Catheterizing and Operating Cystoscope L Buerger New York—p 347
86 Cellular and Humoral Factors in Anaphylaxis and Immunity W H Manwaring A R Meinhard and Y Kusama Stanford University Calif—p 348
87 Diagnosis of Gastric Ulcer Duodenal Ulcer and Gastric Cancer A Woldert Tyler Texas—p 349
88 Clinical Neurologic Examinations J C Keeler, Philadelphia—p 354
89 Elements of Success in Treatment of Diabetes J Safian New York—p 357
90 Local Anesthesia in Sixty Operations for Acute and Chronic Appendicitis J Wiener New York—p 360
91 Case of Acute Inflammatory Glaucoma Produced by Instillation of One Drop of One Per Cent of Homatropin M J Levitt Brooklyn—p 362
92 Medical Department of United States Army W W Reno—p 363
93 Some Medical Aspects of War T H Goodwin—p 367

Philippine Journal of Science, Manila

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94 Congenital Bilateral Absence of Kidneys in A One Hundred and Forty Millimeter Pig Embryo A Garcia Manila—p 191
95 *Poisoning by Illicium Religiosum Siebold L E Guerrero D de la Paz and A L Guerrero Manila—p 203
96 Rinderpest in Swine with Experiments on Its Transmission from Cattle and Carabaos to Swine and Vice Versa W H Boynton Manila—p 215

95 **Poisoning by Illicium Religiosum Siebold**—Four cases of poisoning by illicium religiosum are reported by Guerrero and his associates According to these cases the following symptoms may occur foaming at the mouth repeated vomiting diarrhea thirst, unconsciousness clonic and tonic convulsions cramps in the legs cephalalgia mental disturbances, insomnia profuse sweating oliguria or anuria, large strong pulse giving place to small rapid pulse, cold extremities contracted or dilated pupils paresis of the lower limbs and exhaustion The vomitus may be streaked with blood During the convulsions the pupils as a rule dilate, the eyeballs bulge the head is retracted toward the back, the respiration stops and the face is cyanotic In severe or fatal cases of poisoning in man repeated vomiting diarrhea clonic and tonic convulsions which appear in paroxysm cramps in the legs and retraction of the head appear to be the most conspicuous symptoms

The rational treatment of poisoning by illicium religiosum will not be possible till the chemical and pharmacologic reactions of its poisonous principle are definitely established. If the poison was introduced per orem, as is usually the case the stomach should be rapidly evacuated, either by the use of apomorphin or of the stomach tube Apomorphin offers decided advantage over the other medicinal emetics on account of its ready action and the facility with which it can be administered, and lastly because it will produce emesis without causing further irritation of the stomach After the stomach is evacuated, demulcent drinks or emollients may be administered In the authors' opinion liquid paraffin is the most preferable It is not absorbable and is not changed by the digestive juices, hence its soothing effect will extend to the entire length of the alimentary tract The efficacy of safe quantities of chloral hydrate against violent spinal convulsions is doubtful, since the action of such quantities on the spinal cord is little The authors used this drug in one of their cases, but from experiments and the studies of Langaard, they believe that the best method of controlling the convulsions is by the careful inhalation of ether followed by the administration of chloral hydrate and sodium or potassium bromid, the bromids enhance the sedative effects of chloral hydrate In the later stage of the poisoning when paralytic symptoms predominate these drugs are emphatically contraindicated The treatment in this case is chiefly a struggle to keep up the working of the paralyzed respiratory center, the circulatory apparatus and the organs of elimination

Public Health Journal, Toronto

August VIII No 8

97 Control of Venereal Diseases. G Bates, Toronto—p 187
98 Venereal Disease Campaign in New York City L Chargin, New York—p 190
99 Church and Sanitation G G Melvin St John N B—p 196
100 Vital Statistics J Martin Regina Sask—p 203

Southwest Journal of Medicine and Surgery, El Reno, Okla

August XXV No 8

101 Summer Diarrhea of Babies A T Coley, Oklahoma City—p 185
102 Acute Anterior Poliomyelitis C W Garrison Little Rock, Ark—p 191
103 Plea for Uniform Technic in Wassermann Test W H Bailey Oklahoma City—p 197
104 Fractures of Neck of Femur M E Stout, Oklahoma City—p 201
105 Calcareous Ovary W E Dicken Oklahoma City—p 205

Texas State Journal of Medicine, Fort Worth

August XIII No 4

106 *Blood Transfusion in Anemias M L Graves Galveston—p 137
107 Roentgenotherapy of Skin Cancer J M Martin Dallas—p 141
108 *Vomiting of Pregnancy Cause and Treatment C R Hannah Dallas—p 145
109 Why Quarantines Fail in Protection of Public Health S A Woolsey Austin—p 147
110 Practical Application of Blood Grouping in Transfusion W F Starley Jr Galveston—p 150
111 Pasteurization of Corneal Ulcers C B Williams Mineral Wells—p 156

106 **Blood Transfusion in Anemias**—Graves' experience does not lead him to believe that blood transfusion in the present state of our knowledge may be regarded as a curative agent in pernicious anemia, notwithstanding the marked amelioration of symptoms, general improvement and even apparent remissions of the disease obtained by their employment

108 **Treatment of Vomiting During Pregnancy**—The following treatment is employed by Hannah Insist on the patient taking her breakfast in bed and remaining there for one or two hours Eat whatever she wants at any time during the day and even immediately after vomiting Make a thorough vaginal examination If she is normal, let her alone Give large doses of sodium bicarbonate (1 dram to 8 ounces of water) six times daily

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FOREIGN

Titles marked with an asterisk (*) are abstracted below Single case reports and trials of new drugs are usually omitted

Medical Journal of Australia, Sydney

July 7 II No 1

1 Extracts from a General Practitioner s Notebook. C Joyce—p 1
2 *New Method of Operating for Retrodisplacements of the Uterus. H W Sweetnam—p 3
3 Granuloma Pudendi C G Thorp—p 4
4 Strangulation of Cecum in Inguinal Hernia Sac, complicated by Acute Appendicitis in Infant Sixteen Months Old H Bullock—p 5
5 Embryoma Testis H M Moran—p 5
6 Colitis Polyposa P E W Smith—p 6
7 Wide Propagation of Heart Murmur F G Griffiths—p 8

2 **Operation for Retrodisplacement of Uterus**—Sweetnam's operation is a modification of the original Alexander-Adams operation The essential features of his operation are (1) a transverse superficial suprapubic incision, and (2) a vertical midline entry of the abdomen, permitting the palpation and inspection of the pelvic organs, appendix, etc The author claims that his method is superior to the Alexander-Adams operation because it permits of a thorough inspection of the pelvis so that any pathologic condition may be detected, the exact position in which the uterus is placed can be determined both by sight and touch, it greatly lessens the contraindications to the Alexander principle of dealing with a retrodisplaced uterus, and the uterine condition and a diseased appendix can be dealt with through the one incision, while still preserving the Alexander principle of treating the displacement.

Practitioner, London

August, XCIX, No 2

8 *Transverse Colostomy P L Mummery—p 101
9 Some Hints on the Tonsil Adenoid Operation Based on an Experience of 5,000 Cases D McKenzie—p 109
10 *Contributory Causes of Cancer of the Throat W S Low—p 122
11 *Reduction of Blood Pressure by Nasal Cauterization A Francis—p 129
12 Acute Glaucoma or Iritis? G F C Wallis—p 137
13 Some Cases of Acute Surgical Abdominal Disease Presenting Special Features C Bennett—p 145
14 Plea for Caution in Surgery of Suspected Renal and Ureteric Calculus G Taylor—p 151
15 Balneologic Treatment of Angina Pectoris L T Thorne—p 155
16 *Obesity and Its Vicious Circles J B Hurry—p 164
17 *Case of Bilateral Suprarenal Hemorrhage J Eadie.—p 183
18 Case of Bilateral Ossification in Brachialis Tendons. N A Sprott.—p 188

8 **Transverse Colostomy**—Mummery calls attention to the fact that transverse colostomy, while offering certain advantages over sigmoid colostomy, should not be made a routine operation, but each case should be decided on its merits This operation appears to afford better control over the stools than does sigmoid colostomy, and prolapse is much less common In performing transverse colostomy, the colon should not be opened at the most dependent part, but as near the splenic flexure as is possible without causing tension When the transverse colon is short, sigmoid colostomy should be preferred The colon should subsequently be cut in half to arrest the peristaltic wave at the opening

10 **Cancer of the Throat.**—One of the results of syphilis, in Low's opinion, is a predisposition, in association with other conditions, to cancer In twelve cases of cancer of the throat, now under observation, syphilis had been contracted in earlier years One of the most constant conditions present in all cases is sepsis of the throat from the presence of carious teeth, pyorrhea alveolaris or septic gingivitis The normal reaction of the mouth fluids is alkaline, but in the presence of these septic conditions it is acid The increased irritating effects of such acid fluids on the mucous covering of the throat is considerable, and may well prove a contributory factor to cancer of the throat. Nearly 96 per cent. of the cases investigated by Low have occurred in men and in nearly every instance the patient has used tobacco to excess Another pernicious influence noted was the baneful but common one of consuming very hot food, and all the cases investigated were found to be people who believed in the free use of common table salt Salt increases the acidity of the alimentary tract and so causes irritation Any form of nasal obstruction that leads to oral respiration, and one of the commonest is displacement of or irregularities in the nasal septum, is followed by chronic dryness of the mucous membrane of the throat In the majority of cases of throat cancer well marked nasal obstruction has been found present

11 **Reduction of Blood Pressure by Nasal Cauterization**—Francis raises the blood pressure by touching different spots in the nose In cases of abnormally high pressure he has gotten a lowering initially of 20 mm of mercury, although the pressure tends to rise again it never reaches its original height, and by persevering with the treatment an ultimate reduction of from 20 to 40 mm usually can be obtained Raising the blood pressure is a less certain result than its reduction The effect is produced by acting on the sympathetic fibers in the mucous membrane, probably by inhibiting vasoconstrictor action In a fair percentage of cases the results are lasting Good results have been obtained in cases of asthma Cauterizing the inferior turbinates has little or no effect on the blood pressure There is a spot on the lower edge of the middle turbinate which will sometimes raise the pressure Within certain limits, the higher on the septum one touches the greater is the effect in reducing the pressure Below the mid-horizontal line there is very little reduction

16 **Obesity and Its Vicious Circles**—The numerous vicious circles associated with obesity have been studied by Hurry The respiratory circles may be combated by measures for promoting the cardiac, pulmonary and diaphragmatic efficiency Breathing exercises are of value, since they increase blood oxygenation and thus promote fat absorption The dyspeptic circle can be broken with a little self-denial and self-control A diet rich in cellulose, such as cabbages, celery spinach, etc, may be prescribed to stay the pangs of hunger Laxative mineral waters diminish the absorption of food from the intestine When the cardiovascular or respiratory systems are involved, the Bergonié system of passive electrotherapy is recommended by Hurry Massage is also of value

17 **Case of Bilateral Suprarenal Hemorrhage**—A boy, five years of age, said to be suffering from pneumonia and abdominal pain, was referred to Eadie Except for persistent enuresis the boy had always been perfectly well When Eadie saw him, he was lying on his back in a somewhat apathetic state, without retraction of the head His face was of a dusky mottled pallor, eyes closed, lips scaly and dry, tongue dry, every appearance of miliary tuberculosis or typhoid. Pulse, 96, temperature, normal, respiration not distressed Urine, normal, abdomen normal in every way, rectal examination, negative Eye fundi normal There was a remarkable disparity between the great prostration of the patient and the pulse, temperature and respiration Nothing being found to account for the condition, an exploratory laparotomy was performed, apparently justified by periodic attacks of acute spasmodic pain referred to the upper abdomen, causing acute flexion of the thighs and ushered in by the *cri cerebral* These attacks were accompanied by increased pulse rate The patient did not indicate the locality of the pain, but his movements showed that it was in the upper abdomen The spasm appeared to be very acute, and recurred about every ten or fifteen minutes A careful search was made of the entire abdominal cavity but nothing was found that could be taken as a cause for the attacks Death occurred thirteen hours after operation Just before death, the boy twice vomited the watery contents of his stomach in forcible spurts The rectal salines also were squirted with force out of the anus At the necropsy, when the liver was turned up, a dark red hemorrhagic stain was observed close to the portal vein and extending toward the right suprarenal body On removing the fat covering, the latter organ was found to look like a dark red clot The left suprarenal body presented an appearance identical with a blood clot, but the staining had not penetrated through the surrounding fat The left lung presented at its base a dark red, fleshy patch A piece of this thrown into water floated No other lesion was found elsewhere, not even the sexual peculiarities attributed by some to disease of the suprarenal bodies

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19 *Incidence of Bovine Infection of Tuberculosis in Man C Wang—p 131
20 *Typhus Fever Experiment with Vaccination with a Cocci Derived from Human Cases M Robertson—p 173
21 Colloidal Nature of Wassermann Reaction R M Walker—p 184
22 Influence of Temperature on Fixation of Complement H R Dean—p 193
23 *Pathology of Worm Infection of Vermiform Appendix Matsuoka—p 221
24 *Primary Tuberculosis of Faucial Tonsils in Children A Mitchell—p 248
25 *Preparation of Solid and Liquid Media for Cultivation of Go coccus W S Cole and D J Lloyd—p 267

19 **Incidence of Bovine Tuberculosis in Man**—A bacteriologic investigation into 123 strains of tubercle bacilli obtained from 88 cases of tuberculosis in man was made by Wang All the strains isolated were found to conform in important respects to either the human or the bovine type of tubercle bacillus In no instance was an atypical strain conclusively demonstrated Out of 68 cases of adults bovine tubercle bacilli were separated in seven instances namely one from 29 sputum cases two from 4 cases of abdominal tuberculosis two from 7 cases of generalized tuberculosis, and two from 28 cases in which the only signs of tuberculosis were the calcareous or caseous lesions Three of these bovine cases gave indication on postmortem evidence that the path of the infection was by way of the intestine Out of 20 cases of children the bovine type of bacillus was isolated in eleven instances These were furnished by three out of 4 abdominal cases three of 5 cases of generalized tuberculosis three of 5 cases of tuberculous meningitis and two of 8 cases with only calcareous or caseous lesions In nine of these bovine cases the primary site of infection was in the intestine The calcareous or caseous glands or nodules of twenty-eight adults and eight children were studied by Wang From five of the former and two of the latter, the material conveyed tuberculous infection to the guinea pig

20 **Vaccination in Typhus**—In July 1914 Penfold isolated a coccus from the blood and from the urine of two patients during the acute stage of the disease and the same coccus from the urine of a convalescent Robertson undertook to test the connection of the organism with the disease and investigated the antigenic properties of the coccus as an immunizing agent against typhus He isolated the coccus from the blood of two cases occurring in 1916 but found that monkeys vaccinated with this coccus had acquired no immunity against a subsequent intraperitoneal inoculation of blood from a typhus patient No evidence was obtained of a causal connection between the coccus found in the blood and the clinical condition known as typhus fever

23 **Worm Infection of Appendix.**—Matsuoka examined 105 appendices removed by operation Worms or their eggs were found in 48, oxyuris in 29 tricocephalus in 2. The oxyuris was found in 9 per cent. of recently inflamed appendices and in 37 per cent. of 70 normal or slightly inflamed appendices Eggs were seldom seen in inflamed appendices which contained worms Worms were only exceptionally present in recent recurrent appendicitis but when this was the case they were found in great numbers. Inflammation never occurred when the worm was in the mucosa Worms were therefore neither directly nor indirectly the cause of acute or of old appendicitis

24 **Primary Tuberculosis of Faucial Tonsils**—Mitchell examined the tonsils removed from 100 children and 6 adults The tonsils were removed either prior or subsequent to the operation for excision of tuberculous cervical glands Forty-one cases showed undoubted tuberculous lesions in the tonsils three of these were adults Of 100 cases of hypertrophied tonsils removed nine gave histologic evidence of tuberculous disease In 92 of the 106 cases the inoculation test was employed Positive results were obtained in 20 cases the bovine bacillus being present in 16 and the human bacillus in 4 cases Of the second group of 100 cases nine yielded positive results on inoculation the bovine bacillus was present in four cases the human bacillus in two cases, undetermined in three cases owing to contamination of the cultures Mitchell concludes that tuberculosis of the deep cervical glands develops from a primary focus in the faucial tonsil much more frequently than is generally supposed Hypertrophied tonsils more rarely are the seat of tuberculosis Tonsillectomy is therefore essential in all cases of tuberculous cervical adenitis in children The author also advocates sterilization of milk by boiling for the artificial feeding of children

25 **Cultivation of Gonococcus**—The preparation of sterilizable translucent agar media for the cultivation of the gonococcus and of broths for rapidly testing fermentation reactions is described by Cole and Lloyd It is suggested that the fermentation reactions of all suspected organisms in glucose maltose and sucrose should be tested The authors claim that the important factors necessary for the artificial propagation of the gonococcus are a suitable hydrogen-ion concentration, a high concentration of free amino-acids and the presence of certain special "growth hormones" The technic of retaining these growth hormones in solution after heat coagulation of blood and tissues is described The effect of variations in hydrogen-ion concentration on viability is discussed and it is suggested that too high a concentration inhibits initial growth whereas too low a concentration favors subsequent autolysis

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26 Normal Parasitism and Microbiosis V Galippe—p 30
27 Availability of Other Cereals to Take the Place of Wheat Bread (Les succedanes du froment devant l'hygiéne alimentaire) F Maurel—p 77
28 Antitetanus Serum in Prevention A Cheret—p 81
29 Dermo-Epidermic Grafts in Repair of War Wounds F Debat —p 82 See Abstract 35 below

26 **Normal Parasitism and Microbiosis**—Galippe describes experiments with fruits and animal tissues which confirm the assumption of the existence of various parasites in the normal tissues of the vegetable and animal kingdom But besides this more or less accidental normal parasitism, he says there is another order of facts, more general, more constant, and dominating to a certain extent the life of the tissues namely the presence in the cell itself of living elements elements indispensable to its functional activity He accepts Bechamp's term of microzymas for them and calls the manifestations of the biologic activity of these intracellular elements microbiosis These infinitely minute elements may survive the destruction of the cell and then may acquire forms and biologic properties which they previously did not possess They may functionate in a kind of autonomous manner anarchistic and may adapt themselves to the new conditions in which they find themselves and continue their evolution The normal parasitism and the microbiosis may continue their evolution parallel or independently of each other In his experiments with apples, etc., he relates that he was able to induce the appearance of micro-organisms from the microbiosis while excluding those from normal parasitism The methods by which he realized this included mechanical trauma contusions etc. and he thus was able to trace certain manifestations of intracellular life and observe the appearance and evolution of certain living elements and cultivate them farther These facts of general biology are applicable to all tissues he says all cells whatever their origin The most striking example is in war wounds The crushed tissues in the wounds favor the development of the phenomena due to microbiosis The danger from leaving these contused tissues in the wounds is recognized now by all surgeons, and the surgical cleansing out of the wound is now the routine practice But the surgeons do this because they know these crushed tissues form the best culture medium for germs brought into the wound with the projectile What they do not know and what Galippe devotes the fifty pages of this monograph to prove, is that on account of the normal parasitism and the microbiosis the part played by the crushed tissues and the extravasated blood is at the same time more important and more decisive They may give birth directly and without foreign collaboration to infectious elements, so that an absolutely aseptic projectile is capable of infecting a wound solely by its mechanical action in starting the abnormal evolution of the living intracellular elements already present The research was done in Landouzy's laboratory and the data presented corroborate the lessons already learned from clinical observation

28 **Preventive Antitetanus Serum.**—Cheret relates a number of examples to show the remarkable protection conferred on flocks of sheep and other domestic animals by preventive injection of antitetanus serum when tetanus was prevailing among them Sheep are almost as susceptible to tetanus as the horse, but the preventive injection seemed to render them absolutely immune

80 **Typhoid in Dutch East Indies**—Bonne's report deals exclusively with Surinam where fevers of all kinds are exceptionally prevalent About 25 per cent of the cases of typhoid in the principal town were in children The proportion in children throughout the country is probably still higher in reality as many cases must escape recognition

81 **Mortality from Tuberculosis in the Netherlands**—Saltet shows by tabulated statistics that the mortality from pulmonary tuberculosis presented a gradual decline from 13 5 per 10,000 inhabitants in 1901 to 10 6 in 1913 The general tuberculosis mortality dropped likewise during the same period from 19 6 to 14 per 10,000 in 1914 But since the war began, the figures have risen respectively to 12 6 for the pulmonary and to 16 8 for the general tuberculosis mortality

82 **Recovery from Otogenous Meningitis After Repeated Operations**—The instructive case reported by Quix was in a woman of 25 who for a year had had otitis media with cholesteatoma formation in the mastoid A radical operation failed to prevent the involvement of the labyrinth and development of Meniere's disease From the labyrinth the process invaded the dura and part of the cerebellum, the lumbar puncture fluid containing many pus cells and diplococci Operative opening up of the labyrinth gave some relief but did not reach the focus in the posterior cranial fossa This was then reached and drained separately By this means the extensive infectious process in the meninges, brain substance and around the spinal cord was finally cured General anesthesia had been applied on five separate occasions and—except for ligation of the internal jugular vein—about every operative procedure known to the otologist had been applied, as is described in detail The case teaches that when the cerebrospinal fluid contains abundance of pus cells and bacteria, this indicates a diffuse process in the meninges but that repeated extensive operative measures and ample drainage with rubber drains and gauze above and lumbar puncture below may ensure recovery It is the first case of the kind in the Netherlands in which the patient recovered after an extensive operation.

Hospitalstidende, Copenhagen

July 4, LX, No 27, pp 645 668

86 *Chronic Duodenal Ulcer T Rovsing—p 645 Commenced in No 26, p 621

86 **Chronic Duodenal Ulcer**—Rovsing analyzes his experiences with 133 cases of chronic duodenal ulcer, saying that the Bucquoy-Moynihan set of symptoms occurs more frequently with duodenal ulcer than with ulcer elsewhere, but that the very same symptoms may be observed with an ulcer at the pylorus or near it and even higher up in the stomach Tests of stomach functioning and Roentgen examination often aid in differentiation, as negative findings in the stomach, when there have long been symptoms of an ulcer, certainly suggest duodenal mischief To blindly follow those who rely on the anamnesis alone, is to mistake a gastric for a duodenal ulcer in many cases The pain and tenderness with gastric ulcer are usually to the left of the median line and to the right with duodenal ulcer The quality of the food does not seem to influence the pains, as is liable with gastric ulcer The appetite is usually unimpaired Blood in the stools is a far more frequent finding with duodenal than with gastric ulcer, he found it in seventy-four of his cases In nineteen there had been hematemesis In his experience, retention in the stomach very rarely occurred with a Bourget test meal even when the operation revealed considerable stenosis of the pylorus There may be much dilatation of the stomach but retention is exceptional On the other hand, with gastric ulcer and a similar degree of dilatation there is marked retention This absence of retention has often proved an instructive differential sign In three of his cases of perforation the patients insisted that they had never had any symptoms of any kind until the perforation occurred Besides gastric ulcer, gallstones and nervous dyspepsia, "nervousness" or pure hysteria are the mistakes most frequently made in diagnosis For many of his patients the bitterest feature of their cases was that eminent medical authorities had decided that their trouble was due to hysteria One patient in particular had had for thirteen years his periodic attacks of pains and vomiting and had been examined and treated again and again by leading physicians As each time the test meals showed normal stomach conditions, his trouble had been declared to be purely nervous He finally applied to the surgeon on his own initiative, and Rovsing recognized the duodenal train of symptoms The operation showed a perforated duodenal ulcer adherent to the pancreas Another patient was a physician and he had decided to take a course of treatment in a hospital for nervous and mental diseases as his disturbances had been ascribed to hysteria The operation showed the duodenum circularly constricted with an ulceration extending for 4 cm His delight at being freed from the stigma of male hysteria surpassed his satisfaction in getting rid of his painful and dangerous intestinal lesion.

As to operative treatment, Rovsing has become converted to the superior advantages of excision of the ulcer plus the usual Heinecke-Mikulicz pyloroplastic operation, only modified in that he does not stop with incising the pylorus but prolongs the incision downward into the anterior surface of the duodenum and up into the anterior wall of the stomach If the ulcer is in the anterior wall, he makes an elliptical incision around the ulcer and continues it up into the stomach If in the posterior wall, he reaches it through the duodenum, excising it from the mucosa side. A small profusely bleeding ulcer can be drawn up with a pursestring suture and then be sutured together across This danger of hemorrhage from the ulcer sooner or later is a grave menace, he has lost patients from this cause years after all trouble had apparently subsided after a gastro-enterostomy Among his twelve patients not operated on, five had threatening hemorrhage later One succumbed, three recovered under dietetic treatment, one apparently recovered but eight years later had another hemorrhage, the others have had no recurrence to date By his method of opening up the duodenum for inspection from the pylorus to the papilla and even beyond, he can discover minute ulcers and render them harmless by excision or by drawing them up with a pursestring suture. The latter is otherwise impracticable. If the incision is too long for the Mikulicz technic, the Finney horseshoe anastomosis between the duodenum and the stomach can be applied His method is particularly advantageous, he reiterates, in case of a perforated duodenal ulcer, as he shows by the tabulated details of twelve such cases, all with prompt and smooth recovery He tabulates further the outcome in his total 118 cases of duodenal ulcer classified according to the nine methods of treatment applied, the testimony all confirming the promising future of his latest technic, excision of the ulcer, extending the incision up into the stomach, plus transverse suture of the incised pylorus His total mortality in 133 cases was twelve, and there was recurrence in ten cases The latter group had all been treated with gastro-enterostomy and entero-anastomosis

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87 Psychosis After Gunshot Injury of Brain with Bullet Left in the Skull M Anchersen—p 1039

88 *Pluriglandular Insufficiency in Young Woman Tog—p 1046

89 Threatening Hemorrhage from the Rectum After Self Introduction of a Thermometer N P Ernst—p 1053

88 **Pluriglandular Insufficiency in Young Woman.**—The girl of 18 had never menstruated, but for the last three years had severe epistaxis once a month She entered the hospital on account of an abscess in the sacro-iliac region An illustrated description of the case is given, emphasizing the various signs and symptoms demonstrating insufficiency on the part of certain glands with an internal secretion The list includes besides hypotrichia, dwarf growth, infantilism and backward mentality, slight pigmentation of the skin, latent tetany, exophthalmos, slight goiter, hyperglycemia without glycosuria, and defective development of the genital organs There were also congenital heart disease, apical infiltration and scoliosis None of the other members of the family displayed this glandular insufficiency

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INFLUENCE OF LARGE DOSES OF DIGITALIS AND DIGITOXIN ON THE BLOOD PRESSURES IN MAN*

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The influence of the several digitalis bodies on the blood pressure in both man and animals has been the subject of considerable study It is now quite generally agreed that strophanthus, amorphous strophanthin and ouabain do not exert any direct vasoconstrictor action when administered to man in therapeutic doses, and the present tendency is to regard both digitalis and digitoxin as similarly devoid of such action There is, however, still some divergence of opinion in regard to the latter drugs, and it is my purpose to review the essential literature relating to this question and also to present the results of a careful study of a small group of cases

Gottlieb and Magnus[1] reviewed the literature in support of the view that digitalis increased the blood pressure, and recorded a series of animal experiments which has done more, perhaps, than any other study to lead to the belief that the digitalis bodies are capable of producing marked vascular constriction through direct action on the vessel walls Their experiments were carefully executed, and proved that large doses of digitoxin, true digitalin, amorphous strophanthin, ouabain and convallamarin were capable of causing great elevation of the systolic blood pressure when thrown into the blood stream in concentrated solutions Gottlieb and Magnus used doses of the several drugs which ranged from about five to over fifteen times the minimal fatal doses They noted particularly that when the smaller amounts were employed the results were not constantly obtained They were able to show that the increased blood pressure was due to the combination of an increased force and volume output of the heart's systole with a pronounced, direct constrictor action of the drug on the vessels of the splanchnic area In the case of digitoxin this constrictor action was also exerted on the peripheral vessels generally, while with the other drugs studied such an action on the peripheral vascular system was soon overcome by dilatation, in part through increased pressure, and in part through a reflex from the splanchnics

Although these experiments clearly showed that the several digitalis bodies employed, and especially digitoxin, were capable of causing in animals both splanchnic and peripheral vasoconstriction and great elevation of the blood pressure, the same results cannot be obtained when these bodies are used in man Quite contrary to the authors' own conclusion, their observation that doses smaller than about five times the fatal dose often failed to cause the typical response is very strong evidence that therapeutic doses will not cause either vasoconstriction or elevation of the systolic blood pressure in man This is rendered even more probable when we remember that the full therapeutic dose is usually administered to man in relatively small fractions repeated over a period of several hours or days, so that the drug enters the blood stream very slowly Finally we have shown repeatedly in the laboratory[2] that digitoxin and other digitalis bodies leave the blood stream almost immediately after their direct intravenous injection

The remarks just made apply with equal force to the possibility of drawing conclusions for man from the perfusion experiments of Fahrenkamp,[3] who found that digitoxin in a concentration of 1 840,000 sometimes caused some constriction when perfused through the sensitive vessels of the rabbit's intestine, while concentrations of 1 330,000 usually caused marked constriction, though even these sometimes failed The largest single dose of digitoxin which we have dared to give to a man by mouth was 1 5 mg to a patient weighing 59 kg (130 pounds) Starling states the blood volume for man as about 5 per cent of his weight, so that this patient had about 3 kg of blood If the entire amount of digitoxin given could have entered the circulation at once, the resulting concentration would have been only about 1 2,000,000, or considerably less than half the lowest concentration found effective on direct perfusion But no one pretends that the oral administration of any of the digitalis bodies is followed by its immediate absorption into the circulation, and it is obvious from our experiments just cited that during absorption the drug would leave the blood stream almost as rapidly as it entered

The experiments of Gottlieb and Magnus and of Fahrenkamp are cited as typical of those on which the argument has been based that the digitalis bodies are capable of causing vasoconstriction in man It must be quite obvious to any one who gives the matter a moment's thought that it is utterly fallacious to reason from such experiments that similar effects would be produced in man from the therapeutic use of digitalis or its congeners

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[1] Gottlieb and Magnus Arch. f exper Path u. Pharmakol. 1902 47, 135

[2] Hatcher, R. A, and Eggleston Cary Unpublished data

[3] Fahrenkamp Arch exper Path u. Pharmakol, 1911, 65, 367

However, men of wide reputation, whose words have gained authority, do accept the results of these experiments as applying to man One of the most illustrious of these is Wenckebach,[4] who says

> However poor our real knowledge of these conditions (vascular) in man may be, we yet may say that there exists a vascular action of digitalis in man Not only the analogy with experiments in mammals may be called in, but I think every practitioner has experienced the curious fact that one may *feel* at the radial pulse whether digitalis is given or not It is not only blood pressure which gives this curious sensation of the digitalis pulse, I think it must be the condition of the wall of the artery altered by digitalis
>
> Sometimes we may observe even a very strong contraction of the arteries as far from the periphery as the radial and the brachial pulse I remember very well the case of a lady, in a very bad condition by exhausted and diseased heart, in which a desperate dose of digitalis, given as an enema, caused the radial pulse to disappear by constriction of the arterial wall, the throbbing carotids being filled to a maximum, and the heart working strongly against a very high blood pressure in the aorta, yet not succeeding in pushing a pulse into the peripheral vessels

These paragraphs illustrate to what extremity so-called clinical observations and deductions can be carried by one of authority The author lends the weight of his opinion to the belief that digitalis may exert a powerful peripheral vasoconstriction in man and yet he cites no evidence whatever worthy of the name in support of his views, for no one could be expected to accept the ill defined feeling of the pulse as evidence of vasoconstriction, or to take seriously the observations of the effects of that "desperate dose of digitalis" which obliterated the radial pulse It might be observed that it is just such utterances as these which tend to make thoughtful men look askance at the general run of clinical observations, often to the detriment of accurate studies of real worth

A number of reports of observations of the blood pressure in man under the influence of therapeutic doses of the digitalis bodies have appeared showing that there may be some increase in the systolic pressure But the same result has been observed to follow the use of strophanthin, which is generally conceded to be practically devoid of vasoconstrictor action in doses suitable for therapeutic administration On the other hand, many observers have reported that the therapeutic use of digitalis is not constantly accompanied by any rise of systolic blood pressure and is often associated with a fall or with no change

As long ago as 1901 Sahli[5] stated that in cases with circulatory stasis and high blood pressure digitalis not only relieved the stasis, but also very often reduced the blood pressure by from 30 to 40 mm of mercury He believed that this was due to the relief of the vascular constriction associated with dyspnea and to a dilatation of the peripheral vessels Mackenzie[6] concluded from a painstaking study of the actions of digitalis in cardiac therapeutics that "medicinal doses of digitalis do not affect the arterial walls, or if they do so, their effect is so slight as not to be recognizable" Cushny[7] stated that in patients the blood pressure was rarely elevated by digitalis and, in fact, it might fall as the general improvement set in Martinet[8] pointed out that digitalis might raise, lower, or not alter the systolic blood pressure, but that it always reduced the diastolic pressure and thereby increased the pulse pressure He contended that this fall in diastolic pressure indicated a dilatation of the vessels

Finally, a number of other observers have also dealt with this problem, among whom we might mention Czyhlarz,[9] Gross,[10] Neu,[11] Geisbock,[12] Schwartz,[13] Fellner,[14] Szinnyei,[15] Price,[16] Lawrence,[17] and Cadbury [18] The results obtained by all of these observers agree, in the main, with the conclusions of Sahli, Mackenzie and Cushny, but they are summarized in the succeeding paragraph

We find that the systolic blood pressure was recorded for 181 cases In sixty-six of these, or about 36 per cent, the systolic pressure is stated to have risen or to have tended to rise, in fifty-seven, or 31 per cent, it fell, and in fifty-eight, or 32 per cent, it is recorded as having shown no change In 116 instances in which the diastolic pressure is mentioned it is stated to have been increased in twenty-four, or 20 per cent, to have shown no change in sixteen, or 15 per cent, and to have fallen in seventy-six, or 65 per cent While the actual extent of the changes is not always stated, it would seem that digitalis is about as likely to influence the systolic blood pressure in one direction as in another, or not to alter it at all With the diastolic pressure, however, the chances are nearly two to one that digitalis will cause some reduction, and the chances are more than three to one in favor of its reducing it as compared with the likelihood of its raising it Other things being equal, this evidence certainly does not point to the occurrence of any marked vasoconstrictor action of the drug in man The opinions expressed by the several authorities cited are in very general agreement that digitalis has little constant influence on the systolic blood pressure when used therapeutically, and some even go so far as to suggest that it actually often causes some vasodilatation, which would account for the reductions observed in the diastolic pressure

PERSONAL OBSERVATIONS

These observations have been made on a series of fourteen hospital patients under the following conditions of control No patient was accepted for study who had received any digitalis body within two or three weeks prior to the beginning of the observations All were kept in bed and given a light diet which varied but little from day to day throughout the entire period of observation, and the amount of liquid which they were permitted to have was restricted to 1,250 c c for each twenty-four hour period In general, all other medication was omitted during the period of observation, though at times it was necessary to give one or two small doses of morphin or codein for the relief of great distress or sleeplessness during the period before the administration of digitalis The observations covered a period of several days before as well as after the digitalis was given The blood pressures were read by the auscultatory method, a simple mercurial manometer with a broad cuff being used The readings were taken at approximately the same hour each day, by the same observer, or by one whose readings were proved repeatedly to check within 3 mm of mercury with those of the usual observer In any given case the same arm was used throughout

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[4] Wenckebach Brit Med Jour, *1910* **2**, *1600*

[5] Sahli Tr XIX Kong inn Med, 1901, p 45

[6] Mackenzie Heart, 1910 1911, **2**, *273*

[7] Cushny Am Jour Med Sc, 1911, **141**, *469*

[8] Martinet Tr XVII Internat Cong Med, 1913, section v, part ii, Therapeutics, p 232

[9] Czyhlarz Wien klin Rundschau, 1900, **14**, 285

[10] Gross Deutsch Arch klin Med, 1902, **74**, 296

[11] Neu Blutdruck Untersuchungen Inaug Dissert, Heidelberg, 1902, p 332

[12] Geisböck Deutsch Arch f klin Med, 1905 **83**, *363*

[13] Schwartz Arch f exper Path u Pharmakol, *1906*, **54**, 135

[14] Fellner Deutsch Arch f klin Med, *1906 1907*, **88**, 1

[15] Szinnyei Therap Monatsh, 1910, **24**, *427* and *472*

[16] Price Brit Med Jour, 1912, **2**, 689, and Tr XVII Interna Cong Med, 1913, section v, part ii, Therapeutics p *305*

[17] Lawrence Bost Med and Surg Jour, *1914*, **170**, *37*

[18] Cadbury Arch Int Med, 1916, **16**, 317

After the readings had become fairly constant, or after not less than three days of preliminary observation, digitalis or digitoxin was administered orally on the basis of the cat unit of activity and the patient's body weight, as previously described[19] The digitalis used was given in the form of a purified extract, diluted with lactose and made into capsules, each containing 2 5 cat units or an amount equivalent to 2 5 c c of a high grade tincture This was done to eliminate the possible influence of alcohol in the tincture The digitoxin was given in the form of tablet triturates or of the granules of Nativelle's digitaline crystalisee, both preparations having been standardized on the cat The general routine was to give somewhat over half of the calculated total therapeutic dose at 6 p m , a large fraction of the remainder at midnight, and to finish the administration in one or more small doses at six hour intervals thereafter In most of the cases the blood pressures were taken at about 10 a m daily Frequent polygraphic or electrocardiographic records, or both, were taken during the observations

The rigorous conditions of study just outlined were adopted in order to eliminate, so far as possible, adventitious factors which might influence the results—a detail which seems to have been largely overlooked by most others who have approached this problem The studies were purposely made of brief duration because it was desired to secure the effects of the drugs as acutely, and therefore as intensely, as possible, for the pharmacologic studies had shown that whatever vasoconstrictor action the digitalis bodies had was elicited only with massive doses and lasted but a short time For convenience of analysis the cases have been grouped into two classes those with high, and those with normal or low, systolic and diastolic blood pressures Brief summaries of four case records are given below The first two are typical of the entire series, the second two represent the only exceptional results

CASE RECORDS

Case 8—W A., a man, aged 25 was affected with chronic endocarditis, mitral insufficiency and stenosis He was admitted March 14, 1917, with dyspnea, orthopnea and pain in the large joints He had had acute rheumatism at age of 22 with repeated attacks since Rest in bed for five days with restricted diet reduced the dyspnea somewhat, but the orthopnea persisted The patient's weight was 147 pounds

TABLE 1—BLOOD PRESSURE IN CASE 8

March	Systolic	Diastolic	Pulse Pressure
15	142	32	110
16	138	30	108
17	132	24	108
19	134	20	114
20	132	20	112
21	140	16	124

Digitalis extract capsules were administered March 19, 6 p m., four capsules, midnight, two capsules, March 20 6 a. m., dose omitted The dose was equivalent to 15 c.c. of active tincture. The blood pressure was taken daily at 10:30 a m. March 20 10 30 a m, dyspnea and orthopnea were entirely relieved, and there was marked clinical improvement.

Case 14—J McK., a man, aged 56, was suffering from chronic interstitial nephritis, hypertension, mitral stenosis and insufficiency He was admitted, Sept 19, 1916, with edema of legs, dyspnea and orthopnea There was no syphilitic or rheumatic history Rest in bed and restricted diet for eight days produced no material effect The patient's weight was 154 pounds

Digitoxin was prescribed September 27, 6 p m, 1 5 mg , midnight, 1 0 mg , September 28, 6 a m, 0 5 mg The total dose was 3 0 mg in twelve hours Blood pressure was taken daily at 10 30 a m September 28, 10 30 a m, there was marked clinical improvement, marked diuresis, relief of dyspnea and orthopnea

TABLE 2—BLOOD PRESSURE IN CASE 14

Sept	Systolic	Diastolic	Pulse Pressure
23	168	104	64
24	174	112	62
25	178	118	60
26	176	118	58
27	182	120	62
28	190	112	78
29	184	96	88
30	178	94	84

Case 4—J M a man, aged 41, had aortic stenosis and insufficiency cardiac hypertrophy and dilatation He had had rheumatism eleven years previously, and several attacks since He had had chancre twenty years ago, the Wassermann test gave ++++ He was admitted July 5, 1915, with dyspnea, orthopnea and marked edema. There had been several previous similar attacks Rest in bed, restricted diet and antisyphilitic treatment were without effect after seven days The patient's weight was 119 pounds

Digitalis extract capsules were ordered July 12, 6 p m, four capsules, midnight, two capsules, July 13, 6 a. m, two capsules, and thereafter one capsule every six hours until midnight. The total dose to 6 a m was equivalent to 20 c.c. of active tincture. The blood pressure was taken daily at 10 a m Clinical improvement was slight by 10 a m, July 13, it was very marked, with complete relief of dyspnea and orthopnea and marked diuresis by 9 45 a m on July 14

TABLE 3—BLOOD PRESSURE IN CASE 4

July	Systolic	Diastolic	Pulse Pressure
8	130	60	70
9	130	44	86
10	128	50	78
12	126	44	82
13	134	0	134
14	146	0	146
15	132	0	132

Case 6—J C., a man, aged 55, was affected with chronic endocarditis, mitral insufficiency and stenosis Compensation was nearly normal. He had had syphilis twenty-five years previously Rest in bed and restricted diet for ten days brought no obvious change in condition The patient's weight was 145 pounds He was admitted, July 2, 1916

TABLE 4—BLOOD PRESSURE IN CASE 6

July	Systolic	Diastolic	Pulse Pressure
10	104	38	66
11	108	38	70
12	106	40	66
13	118*	46	72
14	104	32	72
15	122*	30	92

* Repeated readings.

Digitalis extract capsules were administered July 12, 6 p m., five capsules, midnight, two capsules, July 13 6 a m one capsule. The total dose of digitalis was equivalent to 20 c.c. of active tincture. The blood pressure was taken daily at 10 30 a. m

Digitalis caused slight sinus arrhythmia and only slight clinical evidence of improved heart action

ANALYSIS OF OBSERVATIONS

The averages for the three days before and the three days after the administration of digitalis have been calculated for the systolic, diastolic and pulse pressures and the heart rate for each case and are given in Table 5 As there was no difference observed between digitalis and digitoxin, the two drugs are considered together Since a change in either direction of less than 10 mm of mercury can hardly be regarded as significant, in view of a possible error of about 5 mm in reading and of a normal diurnal variation of an equal or greater extent, this has been adopted as the dividing point for the analysis of the results

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[19] Eggleston, Cary Digitalis Dosage, Arch. Int. Med., July 1915, p 1

TABLE 5—AVERAGE PRESSURES FOR THREE DAY PERIODS BEFORE AND AFTER DIGITALIS OR DIGITOXIN

Case No	Systolic Before	Systolic After	Diastolic Before	Diastolic After	Pulse Pressure Before	Pulse Pressure After	Pulse Rate Before	Pulse Rate After
A Normal or Low Pressures								
1	142*	145*	87*	80*	55*	69*	96*	77*
2	122	113	96	79	27	33	96	76
3	135	144	94	67	41	51	89	86
4	128	137	46	0	82	137	93	91
5	129	134	78	68	51	66	117	117
6	106	115*†	39	36	67	75	93	77
7	113	108	81	63	32	45	88	71
8	135*	135*	22*	18*	111*	118*	80*	76*
B High Pressures								
9	167	178	113	116	54	62	108	107
10	246	223	126	117	120	106		
11	168	171	118	105	50	66	90	83
12	208	223	129	129	79	93	119	111
13	180	181	107	91	73	91	87	82
14	179	184	119	101	60	83	83	71

* Averages for two days only
† Exceptional variation in two readings

Table 6, constructed from the figures of Table 5, shows

1 Among the group with approximately normal systolic pressures none showed a change in the systolic pressure amounting to 10 mm of mercury, five cases showed a fall of 10 mm of mercury, or over, in the diastolic, none a rise and three no significant change, five showed a rise of 10 mm or over in pulse pressure, none a fall and three no change All of the cases responding to digitalis with an increase in the pulse pressure, and one with no change, showed marked clinical improvement, while of the remaining two cases with no significant change in pulse pressure, one patient was moderately, the other slightly, benefited by treatment

TABLE 6—EXTENT OF PRESSURE CHANGES (CASE NUMBERS)

A Normal or Low Pressures	Systolic	Diastolic	Pulse Pressure	Improvement
Rise of 10 mm or over			1, 3, 4, 5, 7	Marked 1, 3, 4 5, 7, 8 Moderate 2 Slight, 6
Fall of 10 mm or over		2, 3, 4, 5, 7		
Change of less than 10 mm	1, 2, 3, 4, 5, 6 7, 8	1, 6 8	2, 6 8	
B High Pressures				
Rise of 10 mm	9 12		11 12, 13, 14	Marked, 11, 12 14 Moderate 9 Slight, 13 None, 10
Fall of 10 mm	10	11, 13, 14	10	
Change of less than 10 mm	11, 13, 14	9, 10, 12	9	

2 Among the high pressure group the systolic pressure rose 10 mm or over in two cases, fell 10 mm or over in one, and showed no change in three, three cases showed a fall of 10 mm or more in diastolic and three no change, four showed a rise of 10 mm or over in pulse pressure and one each, a fall and no significant change Three of the four cases showing increased pulse pressure also showed marked clinical improvement, in the fourth this was slight The one case with no change in pulse pressure showed moderate improvement, and the only case in either series in which the pulse pressure fell by 10 mm or more showed no improvement The last patient grew progressively worse and died about one week later

In all of the first group of cases the increase in pulse pressure was chiefly due to a fall in the diastolic, though rises of form 3 to 9 mm occurred in the systolic in four of the five cases Fall in diastolic pressure also chiefly accounted for the increased pulse pressure in three of the four cases in the second group, the other having been due wholly to a rise in the systolic

Taking all of the cases together, it is seen that the administration of large doses of digitalis or digitoxin has very little tendency to elevate the systolic pressure, this having been increased by 11 mm of mercury in one and 15 mm in a second case In only one case was the systolic pressure materially reduced, namely, by 23 mm of mercury On the other hand, the diastolic pressure was significantly lowered in seven, or 50 per cent of the cases, while it was never significantly raised

It is evident, therefore, that digitalis and digitoxin have very little influence on the systolic pressure in either direction, that they tend to produce a significant reduction in the diastolic and, more decidedly, to produce a material increase in the pulse pressure These facts are brought out strikingly in Table 7, which gives the grand averages of three days' readings of all pressures, both before and after treatment

TABLE 7—TOTAL AVERAGE PRESSURES FOR THREE DAYS FOR ALL CASES AND FOR EACH GROUP

	All Cases*	Normal Pressure Cases*	High Pressure Cases
Systolic Pressure			
Before	156	124	191
After	156	127	193
Percentage of change	0	+2 4	+1
Diastolic Pressure			
Before	95	73	118
After	86	64	110
Percentage of change	—9 5	—12	—7
Pulse Pressure			
Before	62	51	73
After	73	63	83
Percentage of change	+18	+23	+14

* Excluding Case 4

Since slowing of the heart is one of the most characteristic actions of digitalis, and as this might account for the diminution in the diastolic pressure, this relation was studied in eleven of the cases Reference to Table 8 shows that 1 In the seven cases with a fall of 10 mm or more in diastolic pressure, the pulse rate was slowed by more than five beats per minute in only four cases 2 In the four cases without significant fall in the diastolic pressure, the pulse rate was similarly slowed in three 3 The greatest reductions in diastolic pressure, 27, 18 and 17 mm of mercury were associated with reductions in the pulse rate of three, twelve and twenty beats, respectively 4 The smallest reductions in the diastolic pressure, 0 and 3 mm, were accompanied by pulse rate reductions of eight and sixteen beats 5 In the one case, with no change in the pulse rate, the diastolic pressure fell 10 mm of mercury

TABLE 8—RELATION BETWEEN SYTOLIC AND DIASTOLIC PRESSURES AND PULSE RATE

Case No	Systolic, mm Mercury Rise	Systolic, mm Mercury Fall	Diastolic mm Mercury Fall	Pulse Rate Fall
1	3		7	21
2		9	17	20
3	9		27	3
5	5		10	0
6	9		3	16
7		5	18	17
8	0	0	4	4
11	3		13	7
12	15		0	8
13	1		16	5
14	5		18	12

It is obvious, therefore, that the alterations in the pulse rate do not explain the changes occurring in the diastolic pressure

Table 8 shows also a similar absence of relationship between the changes in the pulse rate and those in the systolic pressure And an equal lack of relationship between the changes in the diastolic and the systolic pressures is evident from Tables 6 and 8

In view of the facts thus brought out, the conclusion seems abundantly warranted that there is no evidence that either digitalis or digitoxin has any direct action on the vessels when given to man even in large therapeutic doses This agrees precisely with the results of animal experiments which show that these drugs produce no vascular changes unless given in amounts several times those which are promptly fatal, or perfused through the vessels in concentrations much greater than could ever be reached in man

To what, then are the changes in systolic, diastolic and pulse pressures in man due? It is not possible, in the present state of our knowledge to answer this question categorically, but the following suggestion may be offered It has been proved that all of the digitalis bodies are capable of increasing the systolic volume output of the heart, and Stewart and Scott[20] have been able to demonstrate that digitalis increases the blood flow through the arm in man It may be suggested therefore, that

1 Digitalis by improving the circulation, leads to improved pulmonary ventilation with the relief of cyanosis and the abolition of the vasoconstrictor effect of carbon dioxid on the center

2 The improved circulation results in the more normal functioning of the various organs and tissues of the body, and tends to restore to normal the several mechanisms by which the circulation is maintained at its most efficient level

On this hypothesis, we should expect to find that the net changes in the systolic, diastolic and pulse pressures would differ in different cases in order best to meet the conditions prevailing This is precisely what is shown to occur in all of the observations here recorded, and explains the apparent divergence in the results of different observers The observation that the pulse pressure is increased in the majority of cases in which there is material clinical improvement as a result of the use of digitalis is also in harmony with this hypothesis, since the pulse pressure is to a certain extent a measure of the efficiency of the circulation through the periphery

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[20] Stewart and Scott Jour Pharmacol and Exper Therap 1915 7, 263

Wild Substitutes for Domestic Plants—One of the projects outlined by the committee on botany of the National Research Council is the search for wild plants which may be used as wartime substitutes for the more costly crop plants During the Civil War Dr John Porcher, a southerner, published a book giving a list of wild plants of the South which could be substituted for much needed food and drug plants. *The American Botanist* (Joliet, Ill) proposes, with the aid of its readers, to compile a similar list. Information is sought as to any plants not ordinarily cultivated which have edible fruits, seeds, roots, etc It is suggested that valuable knowledge on this subject might be obtained from hunters, trappers, woodsmen, farmers, Indians and the foreigners who pick up considerable food from the countryside. Similar information is desired concerning plants that can be used in medicine.—From the *Scientific American*, Sept. 8, 1917

THE NEURASTHENIC AT THE THRESHOLD *

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ST LOUIS

It is still quite the custom in professional as well as in lay circles to tag the proverbial neurasthenic a physiologic enigma, or a psychologic joke, or some kind of an ill-defined cross between the two In view of the various and often fanciful versions of his disorder, there is ample room for some public ridicule It is too bad, however, that the brunt of it should fall on the head of the poor victim and not on his traducers

The language of some writers implies that we have gone far enough with the explanation of neurasthenia by calling it a fatigue neurosis, that essentially it is an undue fatigability of the central nervous system with morbidly increased sensitiveness or irritability Others, impressed with the inadequacy of this deduction, especially in accounting for the psychic conditions, undertake to support a psychogenic theory and are willing to define it as primarily a mental malady A majority of writers declare that the causation is not to be found in tangible or probable structural or anatomic changes, but that the syndrome is the result of a structurally normal organism reacting (organically) abnormally, and that the ultimate or underlying explanation is to be found only in a constitutional defect, a direct hereditary predisposition

The only possibility of sifting these apparently variant conceptions of essential features is to collect some fundamental or physiologic data as a starting point, enough at least to turn our thought in the direction of a more evident harmony

For the moment, in this elementary way, we must remember that the fundamental plot of the nervous system is one of defense and that the instincts and their related emotions have had the leading role in the evolution of this plot In the second place we must visualize, as it were, the whole general scheme of reflex performances by which the various species of defense are maintained and coordinated

Modern physiology undertakes to instruct us concerning the workings of the systems of neural mechanisms by which our orientation with environment is sustained Therefore, in order to gain conceptions adequate to guide our arguments in this field, we must gain some familiarity and sympathy with physiologic deductions, including the technicalities by which they are presented to us

For example, in our clinical studies we find the neurasthenic absorbed in his sensations He is continually disturbed by an abnormal consciousness of them He is never at par in his subjective condition This means that he never possesses an emotional equilibrium In this sense, at least, there is an abnormal psychic condition As neurologists we all have more or less familiarity with the time-honored contest between psychology and physiology over the causal relations between emotions and visceral reactions and the mental states connected therewith, and from the phases of this argument we may try to derive some coloring for the formation of a lucid theory Or, again, we notice the fatigue reactions of our neurasthenic patient and are impressed with the fact that to a certain extent they may be paralleled with physiologic fatigue, but we are apt to overlook the limits to which these analogies may here be legitimately extended. In short, one of us, affirming a psychic view, fails to sustain his position for lack of a thoroughgoing argument. Another, impressed with the etiologic importance of the physical side of the problem, fails to assemble in proper sequence the data to which he should appeal for defense of his position.

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* Read before the Section on Nervous and Mental Diseases at the Sixty Eighth Annual Session of the American Medical Association New York June 1917

As a result of circumstance, the modern neurologist is a better psychologist than physiologist, at least in a speculative way. The physical side of physiology, so to speak, is his greater stumbling block. We easily neglect the peripheral side of the nervous system, the neural basis, through which the psychic is attained. For example, we cannot grasp the conception of the threshold and the problems of threshold changes unless we know in a physiologic sense something of the range of stimuli and the conditioning of reflex systems thereto, and something of the rules of conduction, and other correlated phenomena of definite value to the equation. In the light of our newer knowledge of certain toxic agents and their effects, I think we are all going to agree that we have reached the place from which we cannot proceed profitably with our argument concerning the interrelations of the psychic and somatic features of neurasthenia and other neuroses without dwelling carefully on questions of threshold.

Our attention in this direction has been particularly stimulated by physiologic and clinical studies of the glands of internal secretion, and especially the physiologic side of this work has led to more definite conceptions, in that these specific substances may determine stimulus thresholds in definite neurons on which their direct stimulative influence falls.

In considering the various clinical syndromes believed to arise from the toxic products of metabolic anomalies and perversions, neurasthenia has received much attention from older writers, who frequently discoursed on its close relationship to arthritism, obesity and other definite syndromes wherein metabolic derangement is the most evident factor. These observations are too fascinating to be neglected, and hence the modern worker is reviewing them in the light of these newer data. Considering the amount of this kind of work now being undertaken, its promising results and its stimulating effects on physiologic work in general, it is not too much to hope that the neurasthenic, and his neurotic associates, are at the threshold of a more fair consideration.

In practical matters of therapy we find promises of the fulfilment of our expectations. Step by step, we are getting away from extremes and beginning to assume a rational attitude. The abuses of the well-conceived rest method began long ago to show us its proper limitations, and to reveal what was fatigue and what was something else in the case of the neurasthenic. The same has happened in regard to psychanalysis. A superenthusiasm in its attempted application has been replaced by a recognition of its value in leading to certain psychogenic features in neurasthenic conditions. In our present efforts at endocrine gland therapy, we are overreaching again and are probably neglecting some of our older lessons. Yet, through its study we are gaining facts which have direct bearing on questions of diagnosis. For example, having been impressed with the fact that a thyroid intoxication may bring out neurasthenic reactions of classic type we are now casting about for other etiologic possibilities of kindred nature, and owing to this fact our view more readily broadens and we gain a wider conception of the neurasthenic reaction, fundamental in its nature, occurring in somatic states variously produced.

THE PSYCHONEUROSES: HOW SHALL WE LOOK ON THEM TODAY?*

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Twenty-five years ago practically all the neuroses or psychoneuroses were classified as hysteria or neurasthenia. But for many years past there has been a disposition to question and scrutinize these diagnoses, so that gradually the groups have grown smaller and smaller, and today these diagnoses, I suppose, are made very much less frequently than they were twenty-five years ago. This has been my own experience as regards neurasthenia, but not as regards hysteria. An examination of 1,000 cases taken from my private records, beginning in 1894, discovers that the neuroses and psychoneuroses had been classified as shown in Table 1.

TABLE 1.—PSYCHONEUROSES, OCCURRING IN ONE THOUSAND CONSECUTIVE PRIVATE CASES BEGINNING IN 1894

	No. of Cases
Neurasthenia	177
Psychasthenia	0
Hysteria	55
Constitutional inferiority	0
Dementia praecox	0
Psychoneuroses (undifferentiated)	0
Total	232*

* Or 23.2 per cent.

Of all cases seen 23 per cent. were psychoneuroses, 17.7 per cent. were cases of neurasthenia, and 5.5 per cent. were cases of hysteria.

TABLE 2.—PSYCHONEUROSES OCCURRING IN ONE THOUSAND CONSECUTIVE PRIVATE CASES ENDING IN 1916

	No. of Cases
Neurasthenia	36
Psychasthenia	130
Hysteria	69
Dementia praecox	68
Constitutional inferiority	16
Psychoneurorses (undifferentiated)	19
Total	338*

* Or 33.8 per cent.

Comparing this list with 1,000 consecutive cases from my private records running back from December, 1916, I find diagnoses made as exhibited in Table 2.

Of all cases seen, 33.8 per cent. were psychoneuroses.

Strictly speaking, dementia praecox ought not to be included among the psychoneuroses, for this is something different. But it is because a certain number of cases have been and are called neurasthenia, hysteria, etc., that I have thought it proper for the purpose of this study to include it in this table.

Comparing Tables 1 and 2, it is seen that neurasthenia has decreased from 17.7 per cent. to 3.6 per cent., while hysteria has increased from 5.5 per cent to 6 9 per cent But this increase could be explained, I think, by the much larger percentage of damage cases seen by me later as compared with the earlier period

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* Read before the Section on Nervous and Mental Diseases at th Sixty-Eighth Annual Session of the American Medical Associati New York, June, 1917.

I do not accept the view which is held by some that it is useless to attempt to differentiate between the psychoneuroses There are certain clinical and practical differences between neurasthenia, psychasthenia and hysteria which I believe are significant, and yet I am free to confess that I see all sorts of overlapping and borderland cases In Table 2 it will be noted that I have recorded nineteen cases of psychoneuroses as undifferentiated

I have looked over some of my old cases and refreshed my memory somewhat to try to answer the question as to why there is such a great difference in the diagnosis of neurasthenia — 177 cases in the first thousand, as against thirty-six in the more recent thousand cases Comparison shows that about four fifths of my cases of neurasthenia have disappeared Where have they gone? The great majority have been classified in the later records as psychasthenia Cases which were formerly called neurasthenia have been recognized as cases in which there is such a distinct emotional or intellectual change as to make the diagnosis of psychasthenia more appropriate, and they have been so designated But not all cases formerly called neurasthenia have been placed in the psychasthenia group It will be noted that in the recent series of cases the diagnosis of dementia praecox is made sixty-eight times, among which were a considerable number of cases called predementia praecox While I cannot give exact figures, I should roughly estimate that one-third of these cases would have been designated in my earlier experience as cases of hysteria and some of them as neurasthenia, and still later in my experience some of them would have been called psychasthenia Probably one half or two thirds of them would have been designated as some form of insanity I often find in my earlier records the diagnosis of adolescent insanity, which is, after all, not far removed from our present conception of dementia praecox

I wish especially to call attention in the second group to sixteen cases of constitutional inferiority Here we have a group of cases, most of which in my earlier experience, I have no doubt, I should have designated as hysteria or neurasthenia or a few as imbecility The conviction has grown on me more and more that mental inferiority underlies many cases of grave psychasthenia and hysteria, and I look on many of these as cases of constitutional inferiority plus hysteria The name "moron" is now commonly applied to the slighter degrees of mental deficiency We have all seen cases that would suggest dementia praecox which did not seem quite pronounced enough to justify that diagnosis, and which have been called by many predementia praecox and by others states allied to dementia praecox Constitutional inferiority is a condition of deficient intellect along with lowered, deficient or perverted emotional tone and frequently includes cases of potential or predementia praecox or imbecility There are no definite limits to this classification It is of great importance to recognize the existing defect, which is constitutional or fundamental in character and which cannot be eradicated or cured any more than imbecility can be cured The hysterical or other manifestations engrafted on it may disappear, but the underlying condition never does

There is allied to constitutional inferiority or constitutional defect what is commonly called temperament Every now and then one sees a psychoneurosis which is chiefly a case of temperament — a thing much to be reckoned with I recall meeting at a social gathering a bright, intelligent woman who had been a patient of mine some time before, classified as a psychasthenic I congratulated her on looking so well, and in a joking way asked her if I had not made a pretty fine cure of her She quickly replied, "You have cured my neurasthenia, but that was only one third of my trouble I still have the remaining two thirds — my temperament — and you can't cure that"

The differential diagnosis between hysteria and dementia praecox has for many years interested me I have thought about the subject a good deal, and with my assistant, Dr George J Wright, have written a paper on the subject[1] I find the subject a difficult one *Vorbeireden* and *Dammerzustand* (mental torpor or twilight state) of Raicke, along with suggestibility, seemed like diagnostic criteria of value indicative of hysteria I feel that in some cases this differential diagnosis could be made, and several times it seemed to be of real value In other cases in which a diagnosis of hysteria was made we were compelled to revise it subsequently and make it dementia praecox But this difficulty has now largely disappeared I now recognize that, given a faulty fundamental makeup, in some instances dementia praecox will develop and in others, hysteria I think it is the experience of all of us who have had opportunity for extensive observation to note that hysterical symptoms are really common in dementia praecox Yet there are a few cases in which a differential diagnosis is of scientific and practical importance, because a purely hysterical condition is one in which there is far greater hope for clinical recovery than in the dementia praecox syndrome

TABLE 3—REPORT OF THE NEW YORK NEUROLOGICAL INSTITUTE (1916)

House Cases 2 349	No of Cases
Constitutional inferiority	21
Hysteria	48
Neurasthenia	57
Psychoneuroses	99
Total	225*

* Or 9 5 per cent

TABLE 4—REPORT OF THE NEW YORK NEUROLOGICAL INSTITUTE (1916)

Dispensary Cases 5 754	No of Cases
Constitutional inferiority	211
Dementia praecox	101
Hysteria	130
Neurasthenia	373
Psychoneuroses	659
Total	1 477*

* Or 25 per cent. of outpatients

I have now a strong feeling that in cases which appear on the surface as neurasthenia, psychasthenia and hysteria, but in which after careful investigation organic disease is discovered, an attempt should be made to evaluate the underlying mental status of the patient, especially as a basis of prognosis This will include a careful examination of social and family relationship and inquiry into the sexual life of the individual The more this is done, the more I believe we shall discover potential dementia praecox or constitutional inferiority as a condition underlying the psychosis or psychoneurosis Inquiry into psychoses of various types and into alcoholism will frequently disclose an underlying constitutional deficiency I believe this is being more and more realized, especially as regards alcoholism

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[1] Diller Theodore A Study of Hysterical Insanity with an Especial Consideration of Ganser's Symptom Complex Report of Eight Cases Jour Nerv and Ment. Dis. January 1909

For the purpose of comparison, I call attention to Tables 3 and 4, taken from the 1916 report of the New York Neurological Institute

While I realize that it is difficult to compare hospital cases with those from private practice, yet there may be some lesson to be drawn from a consideration of the cases from the New York Neurological Institute Neurasthenia, psychasthenia and dementia praecox taken together constitute a large group of the dispensary cases — 25 per cent in all This does not differ greatly from my own percentage It will be noted that the large number of 373 cases of neurasthenia are diagnosed in dispensary cases and fifty-seven in the house cases

Despite all the efforts made to delimit hysteria and neurasthenia, these conditions remain and can hardly be made to disappear from diagnostic tables

It seems that although we may eliminate in one direction, the cases will appear in some closely allied group But these cases are here, whether we call them neurasthenia, psychasthenia, potential dementia praecox or constitutional inferiority, or something else

These classifications are useful if they are not taken too seriously, if we bear in mind that every case is a law unto itself, and that there are all kinds of overlapping to be observed, and if we do not worry particularly because we cannot force a particular case into a given diagnostic grouping, for we ought not to even try to do so in all instances

SUMMARY

In dealing with all the neuroses and psychoneuroses we must be on the sharp lookout to eliminate all sorts of organic disease, and we must examine and reexamine in order to do this, bearing in mind that by the most acute observers cases have been called hysteria which have afterward been seen by the same observers to be grossly organic — for instance, brain tumor

Hysterical symptoms may appear not only as an expression of various organic diseases, but as a phenomenon of various psychoses and expressions of constitutional inferiority or of temperament My main point in this paper is that, after having eliminated organic disease, we should examine into our case to determine as far as possible the original constitution and temperament of the patient, remembering that some of these cases are best designated as constitutional inferiority

Westinghouse Building

Suicide More Prevalent Among Men than Women —Figures compiled by the Metropolitan Life Insurance Company show that suicide is more than twice as frequent as a cause of death among males than among females This is true at all periods of life except at the ages 15 to 19 The same conditions are found to prevail among the white and the colored races After early adolescence, the white female suicide rate remains practically stationary, never varying very much from about eleven per hundred thousand On the other hand, the white male suicide rate increases with each age period The rate is highest at the ages 65 to 74, when it is over eighty per hundred thousand Suicide is a common cause of death nearly five times as prevalent as at the age period 20 to 24

THE TRAUMATIC NEUROSES

WITH SPECIAL REFERENCE TO THEIR MEDICOLEGAL RELATIONS *

EDWARD E MAYER, MD

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The traumatic neuroses embrace all of the psychoneurotic syndromes which directly follow shock Under this name one includes especially hysteria, neurasthenia and hypochondriasis that have immediately succeeded a trauma It is generally agreed, therefore, that this heterogeneous term signifies no disease *sui generis*, but merely a mixture of functional symptoms which are ushered in through the influence of an accident It does not exclude in the same person other disabilities, mainly surgical, that have resulted from the accident It does not ignore the possible aggravation by the trauma of previously present cardiovascular-renal or other syndromes It does not decide the question of dormant nervous symptoms forced into activity by the accident Unfortunately, also, it does not differentiate between the functional psychoneuroses and brain disorders, like concussion of the brain, which evoke indefinite symptoms resulting from molecular or other definite physical changes

Not long after 1888, when Oppenheim first used this term though Erichsen years before brought out similar views, it became generally accepted, even though not all were in harmony with his point of view that it represented a specific disease with molecular physical changes in the brain In recent years, the desire for annuities and compensation for accidents has caused such a misuse of this diagnosis that many physicians have been won over to accept the contention that the traumatic neuroses are merely a collection of imaginative or ideogenous symptoms clustered around a lawsuit Others again see in it a psychoneurosis which must have been present before, and which has nothing to do with the accident Hellpach, in Germany, speaks of it as a folkepidemic resulting from their system of annuities A Brissaud in France, coined the word "sinistrosis" to express the fixed determination of a person to secure compensation for having been in an accident, and in the Fourth Chamber of the Tribunal it has been ruled that an incapacity resulting from this obsession does not entitle a workman to ask for the allocation of an allowance (Collie) *Rentenhysterie* and *Begehrungsneurose* in Germany and litigation-hysteria in America are likewise used to express this idea Moorehead[1] uses the word "traumasthenia "

But the same functional symptoms develop in persons who do not have accidents that involve compensation, and some individuals who after accidents develop a traumatic neurosis never desire and even refuse compensation Also, notwithstanding a frequently repeated opinion to the contrary, a traumatic neurosis can develop in a person who, before an accident, was absolutely well The termination of litigation does not always result in a total recovery My experience, nevertheless, agrees with the experience of those who claim that a large part of the jury awards in our country represent a valuation of the exaggerated rather than the actual symptoms The intense contemplation of self resulting from the desire for compensation the overzealous efforts of interested attorneys physicians and friends to protract an abnormal mental attitude until the pending litigation is over, and the effort to win the sympathy of the jury by making the most of the litigant s ailments cannot tend toward a true picture of conditions And since most psychoneurotic persons are unduly emotionally receptive the affective factors which cluster around litigation and control the actions and social relations of the litigant are often vastly more disturbing to the nervous system than the initial shock of the accident

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* Read before the Section on Nervous and Mental *Diseases* at the Sixty Eighth Annual Session of the American Medical Association New York, June, 1917

[1] Moorehead Traumatic Surgery, Philadelphia W B Saunders Company 1917

IS THERE AN ORGANIC TYPE OF NEUROSIS?

Renewed interest in the traumatic neuroses, aside from the factor of litigation has resulted from the present great war Oppenheim[2] reaffirms and amplifies his point of view that after the trauma there is a definite reaction on physiologic functioning which may be either mechanical or physical in action Either type of causative factor has the same effect on the nervous system He says

> There is no doubt that the finer organization of the nervous tissue can be directly and indirectly injured without the occurrence of hemorrhage inflammation, degeneration and necrosis I refer to finer physical occurrences The influence of this overestimated impulse seems to me to be like the removal of a link in a chain, or of the displacement of molecules or of an inhibition of tracts a tearing apart of associated functioning parts a diaschisis—in short a condition which is not microscopically demonstrable, which does not represent definite alterations of nervous tissue but which in every case produces conduction inhibitions to motor impulses

He cites the frequently found vasomotor-secretory-trophic disturbances as a further proof, likewise the hyperthyroidism which often follows shock of an accident His experience from the war neuroses has fixed more firmly than ever his belief that we are dealing in some of the traumatic neuroses with an overstimulation of the nervous system with a resultant altered function which is not hysterical, implying thereby a psychogenic origin, or neurasthenic, conveying thereby the idea of an exhaustion origin His observations concerning reflex paralysis and the flaccid atonic paralysis of amnesic akinesia, differing from the hysterical type, its predilection for the left side, its constancy and often accompanying trophic disturbances represent a brilliant though unsuccessful attempt to isolate a syndrome peculiar to the traumatic neuroses Regis,[3] commenting on this question, records a sluggishness of gait not extending to paraplegia in the hind legs, among other symptoms observed in dogs that have been subjected to violent explosions The dogs that died after three or four days did not have any discoverable microscopic lesions of nervous tissue. Sudden deaths under shell fire have been reported from the front without any injury having been received They cannot, however, be used, as has been done by Farrar,[4] in supporting the view of probable minute changes in the central nervous tissue It is just as probable that myocardial and cardiovascular disease was the cause

The war neuroses have, on the other hand, accentuated the views of those who see in the traumatic neuroses only a psychogenetic or ideogenous syndrome Lewandowsky[5] attacks Oppenheim's hypothesis, most drastically asserting that "a mechanical shock to the nervous system by way of sensory and sensorial tracts is unknown to physiology or pathology" In the discussion of Cassirer's paper before the Berlin Neurologic and Psychiatric Association, Feb 14, 1916, not only Lewandowsky, but also Schuster, Bonhoeffer and Liepmann objected to Oppenheim's attempt to isolate in the traumatic neuroses a syndrome which was organically produced and, not therefore, hysteria

Though working as an aurist in a base hospital, Wilson[6] ventures on a hypothesis which presents the same line of reasoning as does Oppenheim He speaks of three types which he encounters (1) those with actual nerve deafness, (2) those who recovered hearing, but with fixed ideas of nerve deafness still remaining and (3) malingerers I quote the following from him

> The symptoms associated with loss of *hearing from high* explosives fall within the group of nerve diseases called traumatic neuroses In many of our cases there is a recognized physical trauma to the head or elsewhere received during the period of mental excitement It is well recognized that traumatic neuroses are apt to occur under such conditions There is unsteady equilibrium with vertigo There is a concentric narrowing of the field of vision In many of our cases, fields of anesthesia were present

He sets up the following explanation

> 1 At the synapses there is a structural discontinuity of the nerves 2 The results produced by impulses traveling in a nerve depend on the way the fiber ends and not on any differences in the impulses themselves 3 At the synapses different physiologic systems come in touch with one another and so coordinate action in diverse systems is possible 4 At the synapses there is always a spread of nerve impulse and the greater the impulse the greater the spread

With this basis, Wilson says, we are working on the following hypothesis

> As a result of high explosive with enormous and sudden pressure in the ear, there occurs a dissolution of the permanent auditory pathway and a spread of nerve impulses into the other adjacent pathways The auditory impulse no longer reaches its goal, and deafness results Such a dissolution may occur at any one or all synapses

His reasoning, though conjectural, may be applied to many of the other symptoms of the traumatic neuroses, such as functional loss of vision, functional paralysis, etc S Meyer[7] describes an apathy simulating dementia accompanied by deafness without any central labyrinthine disturbance which he speaks of as a functional inhibition of cerebral activity This seems to be similar to the Wilson type of traumatic neuroses Hysteria from shell shock he observed frequently It was not, however, accompanied by deafness or any profound disturbance of hearing These cases had nothing in common with his first group of patients, which he considered to be a special type of mental disturbance It is not a pronounced apathy with a retrograde amnesia producing varied types of pseudodementia such as has been frequently observed in the traumatic neuroses, especially after catastrophes

The shock hypothesis of Monakow which he calls "diaschisis" seems to me to be a valuable conception

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[2] Oppenheim H Die Neurosen nach Kriegsverletzungen Berlin S Karger 1916 Neurol Centralbl 1915 **34**, 514

[3] Regis Boston Med and Surg Jour 1916, **175**, 22

[4] Farrar War and the Neuroses, Am Jour Insan. 1917 **73**, 716

[5] Lewandowsky Ztschr f d ges. Neurol u Psychiat., 1915 **11**, *703, 1915*, **12**, *434-439*

[6] Wilson The Effects of High Explosives on the Ear Brit. Med Jour 1917 p 353

[7] Meyer S The Nervous Symptoms Following Shell Shock Ztschr f d. ges. Neurol u. Psychiat. 1916 Orig **33**, 353

It resembles, but goes farther than the idea of nerve circuits It is well recognized that any catastrophic event may stop the brain from receiving any information Diaschisis, therefore, results, not merely after *hemorrhage* or thrombosis, as Monakow brought out, through a primarily disturbed brain, but secondarily through a failure of the sensorial pathways to properly influence the brain centers

AN EXPLANATION OF THE PSYCHONEUROSES

We start, therefore, with the assumption that an acute stoppage of cerebral activity may result after trauma This need not be structural in origin any more than a syncopal attack premises structural brain changes But it must be of such a degree that the individual cannot adjust himself to it This disordered situation brings emotional reactions and its motor responses If the brain adjusts itself, the emotions subside gradually, if not, the attempt to do so increases the emotional reaction Such emotional reactions represent the strongest drainings of energy to which the nervous system can be subjected An emotional complex thus produced by an accident nullifies all efforts of the body to adjust itself, acting similarly to emotional reactions produced by various psychogenic determinants The body vainly tries to secure an adjustment The glandular secretory organs work overtime And there results from their overstimulation the same nonintegrations as are produced by the overactivity of these organs from other causes An ideogenous factor now stepping into play establishes a vicious circle It is especially an acute and intense emotion, which in not allowing any time for readjustment, quickly drains off neural energy It cannot be replenished if any factor connected with the accident prevents, whether it be primitive fear, or desire for compensation, or other wish factors

Such a draining of energy is probably similar in result to the overactivity of cells which in diaschisis produces a physiologic stoppage of function This is transient if the cells can replenish their energic substances, permanent, if they become damaged, or if the synaptic connections cannot become reestablished (Sherrington) This draining of energy is typified especially by the clinical syndrome of complete asthenia and need not be marked by any emotional stage As a rule, however, the ideogenous factors are present from the beginning to exercise their influence on the nervous system, especially the autonomic nervous system Bivalency of origin is, therefore, generally noted in the traumatic neuroses The line between stimulation and overstimulation on the physiologic side is hard to establish, likewise we cannot easily differentiate the negative from the positive side of an emotion, a euphoria from a dysphoria, etc The discrepancies in points of view are due often to the observer overvaluing one valency and neglecting to give the other its proper perspective Endocrine neurasthenia exemplifies this confusion Entities should not be raised up which tend to ignore the unity of the entire nervous system

Once established, emotions functionate and keep up their harmful influence in many ways "Fixation of neuroses" and shirking and habit reflexes or substitutions are the result Unconscious wish factors often determine them And more often the brain defends itself from its enemy by suppressing the content of the emotion Submerged, it may continue dynamically active and influence the reactions of the individual by surrogations, projections, introversions, etc But in all these mental processes the cerebral cortex is activated since it represents the adjuster mechanism of the afferent neurokinesis (Dearborn[8]) Pawlow's conditioned reflex studies help us to understand how these psychokinetic equivalents act And also Adler's[9] organic inferiority conception with the psychic factors it involves is likewise a fingerpost on the road to a complete understanding of the psychoneuroses

SOME ATTEMPTS AT CLASSIFICATION

Grasset[10] groups the psychoneuroses under (1) the sensory motor (motor sensitive) psychoneuroses; (2) the sensorimotor (motorsensorial) phychoneuroses, and (3) emotional and psychic psychoneuroses

1 The classical hysterical traumatisms or traumatic neuroses Here we find apparent disability from paralysis, paresis or contractures, anesthesia of the various functional types, psychosplanchnic syndromes, circulatory, respiratory or digestive and neurasthenic syndromes

2 Sensorimotor psychoneuroses Under this title are included those psychoneuroses in which symptoms on the part of the special senses predominate visual symptoms, aural symptoms, disturbances of speech and writing of a functional type and various mimicries

3 Emotional and psychic psychoneuroses He places here "persons with hyperalgesia and hyperesthesia whose hysterogenic zones generate emotion but no other disability They are, he says, not only *angogènes* (hysterogenetic) but *angoissantes* (terrifying) They evince the mimic phenomena of emotion—tremble, perspire, shriek, attempt to flee, etc"

Cimbal[11] argues for a more practical classification which will indicate clearly the condition found on examination (*a*) Acute nervous irritation is not, he says, a traumatic neurosis (*b*) Acute nervous exhaustion is not neurasthenia, inasmuch as it is not developmental and does not deal with constitutional inferiors

4 Asthenia describes a general exhaustion more clearly than does neurasthenia Hysteria is too vague and should be divided into fright neuroses, repression neuroses (*verdrangungsneurosen*), inhibitory neuroses (*hemmungsneurosen*), congenital irritability, moods, psychic spasms and displacements (*verschobenheitszustanden*)

5 He separates from the war neuroses also two organic types of neuroses (*a*) concussional neuroses of the brain with disturbances of ocular movements, of the visual fields, of audition and of coordination, (*b*) a cerebral compression type occurring from shell shock with spastic hemiparesis without ankle clonus or a Babinski reflex, but with a positive Oppenheim sign These must not be called hysteria

From the Italian war front the observations of Bennati[12] are worthy of comment He considers that the war neuroses are conditioned by two factors, namely, the numerous catastrophic occurrences and extreme exhaustion, producing structural changes, after the hypothesis of Edinger Other observers conclude, however, that exhaustion is not as important etiologically as was formerly assumed In fact, Bonhoeffer[13] expresses great doubt as to whether we are justified in holding to our older conceptions of an exhaustion psychosis

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[8] Dearborn Affective Physiology, Med Rec, New York, April 8, 1916

[9] Adler, cited by Mayer, E E Am Jour *Insan*, 1914, **70**, 661

[10] Grasset Les Psychoneuroses de guerre, Presse med, 1915, **14**, 105

[11] Cimbal Neurol Centralbl, 1915, **34**, 710

[12] Bennati La Etiologia determinata nella nervosi traumatica di guerra, Riv sper di *Frenat.*, 1916, **42**, 49

Farrar[4] concludes that among other things

1 The reactive group is made up essentially of psychoneuroses which may be divided into (*a*) anticipatory, and (*b*) trench neuroses

2 The type of trench neuroses is the condition called "shell shock," which consists of a transitory concussion syndrome followed by a more or less protracted neurotic phase

3 Trench neuroses occur usually in unwounded soldiers There is no satisfactory evidence that trauma plays a part in their causation There are well qualified observers who hold that, as a result of contemporary military experience, the concept of the so-called traumatic neuroses should be abolished

4 The drift of opinion is unmistakably toward the psychogenic basis of war neuroses of all types, including shell shock Even in the initial stage marked by a twilight state of some duration there is evidence that the psychogenetic element may have as great, if not a greater, role than the item of mechanical shock, although this is more important

Regis[14] considers three groups of emotionally produced psychoses

1 Oneirism with morbid dreams which is akin to the second stage of hypnotism and which increases to hallucinatory oneirism

2 Mental confusion types, with obtusion, disorientation agitation or torpor

3 Amnesia types (*a*) The amnesia of cranial traumatisms is lacunar, retrograde, antegrade and actual (*b*) Battle amnesia is complete with terrifying hallucinations Regis does not refer to hereditary types, but to emotionally predisposed, impressionable persons He is in accord with our contention that the neuropathic and psychopathic cannot be separated

INCIDENCE AND RECOVERABILITY

Because of the various interpretations as to what constitutes a traumatic neurosis, as to how much is due to accident and how much is due to predisposition, and because of the varied laws for compensation, statistical prognoses have only a relative value Naegeli,[15] a Swiss, states that 93 per cent return to work after an adjustment His statistics are at variance with those of others Returning to work does not necessarily mean a return to health According to recent statistics (Birnbaum[16]) of psychoneurotics in the German army, 9 5 per cent were returned to active service 35 per cent were able to do garrison duty and 55 5 per cent had to be returned home Wimmer[17] comments on the increase of neuroses since the German pension system went into effect, and considers that the law and not the individual should be blamed Sachs[18] favors no compensation, and considers that there would be no bad prognoses were no gain attached to the claim of disability Billström[19] admits that a traumatic neurosis without damages involved has a better prognosis and presents less severe symptoms than a traumatic neurosis in which pecuniary damages are applied for He considers the prognosis worse among the lower classes and among alcoholic types, and finds that a second accident is always worse than the first Meltzer[20] asserts that an annuity or compensation and accident go hand in hand He cites Brand's observations of the Austrian pension system established in 1895 to the effect that from 1885 through 1894 no cases of traumatic neurosis following accident were described, whereas from 1895 through 1904, there were forty-six cases Laudenheimer[21] divides psychoneuroses among the soldiers into five varieties (1) depressive-anxiety neurosis, (2) neurasthenia, (3) hysteroid, (4) epileptoid, and (5) psychopathic types He finds that patients with hysteria were without predisposition and were most severely injured soldiers (shell explosions, etc) The first class became again fit for service, and 60 per cent of the second class returned to the front We cannot follow such attempts at prognostic classifications Each case must be judged by itself, as endogenous and exogenous determining influences vary considerably independently of the diagnosis

We need hardly call attention to the fact that were pension and compensation not involved, physicians would not bother to comment on the traumatic origin of a neurosis Writers often quote Zingerle,[22] who reports on the Messina earthquake that he did not find a single case of traumatic neurosis after the shock Also Bianchi examined immediately after its occurrence, 500 persons who were in this great catastrophe and found no traumatic neurosis, yet Neri[23] observed many psychoneurotics among the survivors Stierlin,[24] three months afterward examined 226 victims, and 20 per cent of them had various objective symptoms of traumatic neurosis He found also that they had no psychoneurotic symptoms before the earthquake and no history of predisposition This period of latency, giving the mind time to develop the fright and fear factors of the episode, is considered important by him in the etiology and prognosis Yet, in his report of the catastrophe, he enumerates many who immediately developed a psychogenetic (traumatic) neurosis from the intense fear state engendered and in whom ideogenous factors seemingly had no chance to develop

Dercum[25] considers that only hysteria—an innate state—is embraced under traumatic neurosis, that the symptoms owe their origin to suggestion, that trauma unconnected with fright plays no role, and that in hysteria evoked by an accident and not involving litigation, the interval between accident and hysteria is unusually short, the symptoms rarely pronounced, and these as a rule, fade and disappear spontaneously or readily under the suggestion of treatment, unless indeed, the treatment and the attitude of the physician and others is such as to confirm the belief in injury

Suggestion by the physician is not, however, always the producer of anesthesia as Dercum, following Babinski, maintains Accidents to railway employees do result in traumatic hysteria without litigation or compensation being involved, as I have personally observed, and postlitigation results of traumatic hysteria without other complicating disease are not always favorable But it is true that the plaintiff rarely submits himself to treatment and that the symptoms often disappear after litigation is terminated We do not agree that the type of hysterical disability found in the traumatic neuroses is always accompanied by the so-called character anomalies of congenital hysteria They often were previously normal, and it is only guesswork to assume that a previous neuropathy existed

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[13] Bonhoeffer Allg Ztschr f Psychiat ref Ztschr f d ges Neurol u Psychiat ref 1916, **13**, 3

[14] Regis Psychic and Neuropsychic Affections of the War Boston Med and Surg Jour 1916 **175**, No 22

[15] Naegeli Cor Bl f schweiz Aerzte, 1910 No 2

[16] Birnbaum Ztschr f d ges Neurol u Psychiat 1916 **12**, No 4 326

[17] Wimmer Deutsche Ztschr unf H Krankheiten 1913 **49**, 133

[18] Sachs Unfallsneurosen Breslau 1909

[19] Billstrom Berl Klin 1914 **26**, 1

[20] Meltzer Aerztl Sachverst Ztg 1914 **20**, 19

[21] Laudenheimer Munchen med Wchnschr, 1915 No 38

[22] Zingerle Monatschr f Unfallheilk., 1911 No 9

[23] Neri Rev Neurol 1909

[24] Deutsch med Wchnschr, 1916 No 1 p 6 The Medical Result of the Catastrophes of Courriers Haemm, Valparaiso and Messina Berlin, 1909

[25] Dercum Hysteria and Accident Compensation Philadelphia, G T Bi el Company 1916

However, we are in accord with his general indictment of the pernicious influences of litigation, and recognize that a large number of claimants for damages are obsessed with the desire for a large monetary compensation We also agree that the German system of pensions or annuities makes traumatic hysteria a more hopeless malady than with us, since a permanent dysphoria tends to be produced, but in our system the long months of waiting for monetary recompense serves to fix the neuroses almost equally as much

MEDICOLEGAL CONSIDERATIONS

The right to recover damages for injury due to the negligence of others is incontestable The increase of industrial machinery and the growth of rapid transportation have filled our courts with suits to recover enormous damages for minor injuries Street railway corporations yearly pay out from 5 to 10 per cent of their gross receipts in settlement of claims growing out of accidents Many attorneys and a few physicians devote practically all their time to this kind of work Unconscious malingering, manufactured symptoms, exaggeration of those really present, false interpretations of those present, are daily encountered in our courts Unjust awards result on the part of a bewildered jury

1 Our method of jury trials in which biased opinions carry as much weight as do more careful, if not more competent ones, are unfair How to remedy it is not, however, clear A jury of physicians is unobtainable, and even if it were, would simply multiply the number of physicians in the employ of legal firms and corporations, and the better element of the profession could not be induced to serve A commission of physicians to report to the judge, whose charge to the jury would be based on their findings, would not secure any betterment I am convinced that a commission on which each side has appointed a representative, and the court a third member, also fails for obvious reasons to give good service As Sir James Stephen, K C, says in his "History of Criminal Law" "The judge and the jury alike are and ought to be, instructed only by witnesses publicly testifying in open court on oath"

2 Since our common law permits each side in litigation to secure as many experts as they desire, the legal firms which specialize in accident cases and others, also, by employing physicians on contingent fees, sometimes unduly large, have always at their call physicians who, sharpened by experience, give their testimony the proper bias to influence the jury This conspiracy of interests is reprehensible

A change of law, which would give only the court the right to call experts is impossible to secure, and even if brought about, would not prevent the use of politics by those interested in securing the appointment of the "right kind" of physician If it were possible to create a law which would have the compensation of all experts a matter of court record, by making it a part of the expenses of the trial, some improvement over present methods would, however, be attained

3 Jury awards with us seem to place a premium on exaggeration, and a proper staging of the dramatic possibilities of the client secures an increased verdict Awaiting for years a settlement nullifies all efforts to bring a claimant for damages back to usefulness, and the psychic effects of not desiring health, together with the bringing on of postural spasms and contractures through fixed positions, often in themselves do much harm The German system of an indemnity of two thirds of a person's wages after the fourteenth week does not remove these factors The Danish system of a cash settlement is different from ours in that physicians, not juries, judge the matter, and they accord the claimant a small daily amount until nine months have elapsed when they decide on his compensation, and one and a half years later give a further and final settlement if he has not recovered

One great suggestive influence in litigation is the blanket indictment of complaints introduced by the attorney The averment in it that John Doe is a hopeless nervous wreck is read by the plaintiff before he signs it, and the cooperation of a physician who agrees to the truth of such a statement helps to fix this idea in the plaintiff's mind

4 Working, however, with our present methods I would suggest that all court testimony of physicians be placed on file by their county societies Publicity would tend to stop a certain class of medical testimony It would not prevent ignorant or mistaken testimony, but bought testimony and substituted diagnoses would be less likely to be offered

5 A physician finds great difficulty in securing an opportunity properly to examine a claimant for damages if he is not retained by the claimant's side The examination may be requested at the attorney's office in the presence of a "runner" who cooperates in the examination The plaintiff's physician is utilized to suggest both to the plaintiff and to his colleague, and a second examination is often refused Sir John Collie[26] did a great service in England when he insisted that he be given the opportunity for examination without the presence of "runners" and friends, and, if it was an ambulatory case at his office, where he had at hand all instruments of precision He secured a legal decision, which was affirmed by the higher courts, that a "solicitor's office is not in ordinary circumstances a proper place at which to hold a medical examination of a workman"

6 Medicolegal opinions should never be based on subjective symptoms, and only objective symptoms should be utilized or permitted in making a diagnosis in court The subjective symptoms are not based on actual facts They are not the findings of the physician, and they cause the physician to be unduly influenced I have known physicians to base a diagnosis of epilepsy on the spasms and spells of somnambulism that were manufactured for him, or to base a diagnosis on unconsciousness supposed to have followed an accident which later was shown never to have taken place, or to diagnose "brain abscess from trauma" from a subjective vertigo and head pain and a bradycardia which was familial Such mistaken judgments would be avoidable if the physician dealt only with facts

7 Hypothetic questions will continue to be given Distorted medical facts, exclusion of important symp-

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[26] Collie, Sir John Malingering, London, Edward Arnold, 1913

toms and overemphasis of minor ones make them generally of no value

If the physician has examined the injured person, he should refuse to answer any hypothetic questions unless they included his objective findings, and his answer should be predicated on them If the injured person could be examined, and the physician has not done so the court would probably refuse to permit him to render an opinion The physician should also insist that the symptoms which are the direct result of the accident should be separated from those which are not or probably are not due to the trauma Probabilities and possibilities in prognoses should also be definitely separated in any opinion rendered The law does not require physicians to assume that medicine is an exact science, and honest physicians often do themselves harm in court by being too positive Often, however positive statements dishonestly offered secure a bigger verdict for the claimant Positive prognoses in traumatic neuroses are generally impossible unless the physician has personal knowledge of all medical, familial and social factors He should, therefore, never give opinions based on hurried examinations or imperfect knowledge of environmental factors

I am aware that the expert is required to accept as true the evidence of the witnesses incorporated in the hypothetic question But he is permitted to qualify his answer in order to make it plain that he can have no expert opinion on evidence which does not agree with his objective findings, and he should never be satisfied with categorical answers

8 No statistics concerning prognosis should carry much weight in court because of the personal equation of the nature of the accident and the social status of the patient, and the different groupings found in statistics and variations in the laws of different countries The future of each psychoneurotic patient must be determined separately by studying his social habits, age, nature of work, intelligence, emotional complexes, etc, as well as the kind of accident and diagnosis offered In court, since much of this evidence is not in the hands of the expert his opinion is to that extent defective But more defective still is the opinion rendered on the appearance of the patient, subjective symptoms and the sympathies aroused by the litigation In general, however, the physician is not truthful who renders an opinion that a traumatic neurosis is never a recoverable disease

9 Perhaps, since the postlitigation results are often so radically different from what is claimed, interested corporations should work to secure a law giving them the privilege of an examination at any future time The results of such reexamination, if it was revealed that the compensation was based on false claims, should empower the court to reopen the case I was once interested, for instance, as a witness against a claimant for damages because of inability to use his arm His physicians testified to a brachial plexus paralysis I denied this because of no objective findings The same day after being awarded damages he was using his arm, but the court refused to reopen the proceedings

10 The need for a more elastic system governing accident compensation is plain The medical profession must purge itself of some of its mistaken policies, and be more exact in its diagnoses, before we can expect the legal profession to better our position in the courts The physicians and surgeons in Leeds, England, who consult before the trial and make it an organization matter that a member shall give full and impartial testimony, have solved much of the problem Let us hope that our medical societies may at no distant time establish similar standards of honor and professional conduct

Jenkin's Arcade Building

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS FRY, DILLER AND MAYER

Dr H T Patrick Chicago I make a diagnosis of neurasthenia less frequently than Dr Diller in his second thousand cases Many cases are too abnormal to be explained simply by fatigue In some there is constitutional inferiority, in some a decidedly abnormal state of the emotions Thus we get into something beyond neurasthenia I make a diagnosis of hysteria infrequently and that of psychasthenia frequently I think my indeterminate cases would show a higher proportion

Dr D S Booth St Louis These patients with so-called traumatic neurasthenia present a puzzling variation, one day in court appearing grave and several weeks, or possibly days, later, perfectly well To do justice to these patients we must give them far more attention than we do These cases should be considered and pronounced on by experts, who alone should give expert testimony I remember the testimony of a local general practitioner that had more weight with the jury than that given by imported 'paid experts" The patient had had Bell's palsy, and the physician contended that it was due to a hemorrhage into the brain His knowledge of the nervous system is indicated by his testimony that "the third, fourth, fifth sixth and seventh cranial nerves came out onto the face in the temporal region" Publicity should be given to the testimony of physicians in these cases and, possibly, as asserted by the author of this paper, the evidence should be presented to the local county medical society and then published, so that more careful statements in court would result

Dr Alfred Gordon Philadelphia Dr Mayer presented the subject in a most excellent way, with one exception, and that is as to the question of subjective symptoms If, for example a woman is injured in a street car and has no objective manifestations, yet cannot sleep, is in a constant state of fear and anxiety, is restless and depressed, is it fair to assume that there is nothing the matter with her simply because there are no external evidences of injury? There are cases in which long after settlement the persons are still sufferers This is the experience of every impartial observer I don't think it will be fair generally speaking to deny compensation only because there are no objective symptoms

Dr A W Ives, Detroit Even if there are no objective symptoms, we ought not to refuse to appear in court There are cases with practically no objective symptoms which have gone on from bad to worse, even after receiving compensation Compensation by no means always effects a cure Many persons, after being well compensated, remain psychasthenics all their lives

Dr D I Wolfstein, Cincinnati My experience tells me that there is a general neurasthenia on a purely physical basis, cases in which there is not the slightest ground for suspecting either a constitutional inferiority or any abnormal mental state Many apparently perfectly well balanced people mentally, who up to a given time were also physically capable and who felt no other than physiologic fatigue are suddenly surprised and saddened beyond measure by the discovery that they can no longer work as before, or find the same *joie de vivre* Pathologic fatigue has supervened, and that is the prime factor in neurasthenia simplex There is such a type, and it is, in my opinion, due to some as yet undiscovered toxic factor Dr Diller has called our atttention to his physical state after what might be called a strenuous day in the life of a Pittsburgh neurologist. This I should not term neurasthenia, but a perfectly earned physiologic fatigue What is characteristic of neurasthenics is their inverse type, they are tired when the day begins, wake up tired, and as the day progresses, brighten up, so that they feel best in the evening, or at night. They hate to see a new day begin.

In regard to the traumatic neuroses, certainly there is a group of cases wherein damage has followed, even though no sign of organic change has been found On the other hand, we may not always pay too much attention to the organic signs Many persons get large awards because there is restriction of the visual field, or because one can stick pins into them Nothing is more misleading than the disturbances of motion and sensation which may appear and disappear in the neuroses It is a difficult question and each case must be individually judged

Dr. Tom Williams, Washington, D C The discussion has misled as regards what Dr Mayer states concerning subjective and objective symptoms We need to differentiate etiologically by determining if psychogenetic factors are present or not. Although it is not simply a medicolegal problem, yet in the District of Columbia no compensation can be given unless there is proved physical injury It is not unusual now for the plaintiff's and defendant's physicians and lawyers to agree to refer a case for impartial neurologic survey and abide by the referee's adjudication The best procedure could be settled by general medical opinion So I suggest that Dr Mayer embody his ideas in the form of a resolution, either that the testimony of physicians be drawn up and filed with their respective medical societies, or that physicians should only appear in court and testify after consultation over the case, as in Leeds, England

Dr. A L Skoog, Kansas City, Mo There is one type of neurasthenia that is not, properly speaking, neurasthenia This is in the individual with lowered vital functions due to alcoholism in the parents or prenatal influence I have seen a number of cases in which one could trace the etiology to heredity One can find neurasthenia and disturbance of the nervous system covering short or long periods In laboratories there are tests for activity of the tissues, such as the biometer to measure carbon dioxid elimination Carbon dioxid is found to be given off by the nerve cells and fibers at a comparatively greater rate than from other tissues This fact may be utilized partially to account for the neurasthenic syndrome

Dr. M S Woodbury, Clifton Springs, N Y The type of diagnosis that will direct us to etiology is what we are looking for I have used as a general classification for practical purposes, (1) fatigue neuroses, (2) affective psychoneuroses, that is, those secondary to psychic trauma, (3) secondary psychoneuroses, with physical foundation, such as infection, thyroid disease, gastro-intestinal states, etc These types may occur in combination The main point is that, admitting that most of them are secondary compels us to name the elements which in our judgment are primary

Dr C R Woodson, St Joseph, Mo Many of these cases of neurasthenia are honestly such The patients are especially susceptible to suggestion, and the suggestions of the attorney will, in the end, make confirmed neurasthenics For many of these people adjustment of damages is the best remedy In regard to symptoms, there is no difference in the symptoms of ordinary and traumatic neurasthenia The symptoms in traumatic cases are long drawn out The neurasthenic loses initiative, and takes less and less interest in things, accentuating every ache or pain, hypersensitive, wanting in everything that makes life pleasant, and with mind centering constantly on self

Dr. George A Moleen, Denver I should make a distinction between fatigue as such and neurasthenia as such One speaker mentioned fatigue in the morning, which decreased toward night. A high blood tension will conform to this type of syndrome The second type is usually deficient in hemoglobin content Many conditions associated with high blood pressure or anemia, therefore, establish fatigue on the slightest stress The increase of the hydrogen-ion content will increase fatigue, as is the case in a high altitude, where the subject is not able to do the same amount of work as he can in a low altitude

Dr Bernard Sachs, New York Dr Diller's tables impress us with the fact that we have made some improvement Twenty-five years ago we did not know much about dementia praecox and we did not know about psychasthenia We are diminishing the cases of neurasthenia, but we still use that title for patients who develop all sorts of neurotic symptoms on the basis of exhaustion—mental rather than muscular or physical

Dr Mayer gives us an important medicolegal problem in view of the compensation laws We are going to have plenty of trouble if we include the traumatic cases, and we must decide seriously our position when we have to give testimony The subjective symptoms may be as genuine as the objective, but one can never give testimony that there is an organic lesion, based on subjective symptoms Often I refuse to give an opinion until the patient is brought to the hospital and kept there, especially where the nature of epileptoid or hysterical attacks is to be determined It is not the question of indemnity that troubles workingmen so much as the fear that the accident will interfere with the ability to work and to earn a livelihood Sometimes this fear disappears, but often it remains as a distressing symptom We must be careful about the stand we take

Dr Theodore Diller, Pittsburgh There is another diagnosis which I sometimes make which should have been included in the table, and that is asthenia or atonia, to indicate general lack of vital tone I feel that profound hysteria and dementia praecox are very much the same at the bottom I have abandoned attempting to differentiate the diagnosis in many of these cases

Dr. E E. Mayer, Pittsburgh In answer to Dr Gordon's inquiry I believe he misunderstands my conception of the objective symptoms, though I thought it was the common one I thought that the definite evidences of abnormal functioning of the autonomic nervous system—the tachycardia, dilated pupil, the dermography, the fibrillary tremors and also the signs of motor and nerve irritability—which we find are objective signs The physician personally observes what is objective The same is true on the mental side. Dr Williams has expressed this aspect clearly If I personally observe delirium, a phobia, etc., it is objective. But how can a physician in a medicolegal case make a positive diagnosis and prognosis for the court on symptoms told to him? What right has he to have an opinion in court concerning reported fatigue, sleeplessness, headache, dizziness, roaring in the head, etc, unless he has objective symptoms to back up an opinion? And did Dr Gordon or anyone else ever see a so-called neurasthenia which, if an actual one, did not present such objective symptoms?

Much of neurasthenia is asthenia The entire body is involved, not only the nervous system, and generally too the nervous deficit is not even primary Constitutional inferiority and maldevelopmental types are different from an acutely arising exhaustion due to either endocrinal or toxic factors If we speak of asthenia or nerve imbalance, or use some similar expression, we never forget that we have not made a diagnosis, and that we must ferret out the origin This applies to hysteria too If we could only drop the word! Inhibition or substitution or situational neuroses, psychogenia, functional neuroses, even psychoneurosis would serve better Then there are the occupational neuroses Why did not Dr Diller mention them separately from his neurasthenic type? At Clifton Springs Sanitarium, for instance, I notice they classify more occupational neuroses than they do of any other type of psychoneuroses Why, I don't understand Writer's cramp, for instance, is not ordinary neurasthenia I know Dr Diller sees such cases Where does he group them and why?

Typhus Fever in Turkey—Typhus fever in 1915 caused the death of some 200,000 to 300,000 people in Turkey The government, instead of cooperating with foreign medical missions as the Serbian government did in a similar emergency, sent their own physicians to cope with the disease, and of these several hundred took the disease and died In the Erzerum region, where, on a conservative estimate, between 60,000 and 100,000 died, soap, water and fuel were almost impossible to obtain during the epidemic Three of our American board physicians in Asia Minor gave their lives to this disease—A. R. Hoover, M D, *The Survey*

OBSERVATIONS ON SURGICAL SHOCK

A PRELIMINARY NOTE*

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AND
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NEW HAVEN, CONN.

At the request of the Committee on Physiology of the National Research Council, a cooperative investigation of surgical shock has been instituted in a number of physiologic laboratories throughout the country, and one preliminary report has already been published in The Journal.[1] We have selected as our part in this investigation three problems: (1) the bearing of excessive and prolonged secretion of epinephrin on the production of shock, (2) the relation of acidosis to shock, and (3) the oxidative metabolism in shock.

While pressure of other duties has prevented the completion of these studies, we have obtained data which are of sufficient interest for publication in the form of a preliminary note.

EPINEPHRIN AND SHOCK

The condition of "surgical shock," unless associated with extensive hemorrhage, is always the result of prolonged and severe sensory stimulation. As stimulation of sensory nerves induces discharge from the suprarenal glands it may be assumed that the rate and duration of secretion is proportional to the intensity of the stimulus. Whether a prolonged condition of excess of epinephrin in the circulating blood can produce shock is one of the questions we have attempted to decide.

The experiments were conducted under ether anesthesia. Cats and dogs were employed. Respiration and arterial pressure were recorded. Epinephrin (adrenalin chlorid solution, Parke, Davis & Co.) of various strengths (usually 1:10 and from 0.5 to 1 c.c. per minute) were infused into the femoral vein, in some experiments at a constant rate, in others intermittently. The blood pressure was thus maintained at a very high level for a period of from one-half hour to two hours. Then the administration was discontinued. Careful observations were made at frequent intervals during and following the epinephrin administration. In none of the experiments did symptoms of shock appear. The only definite symptoms observed were those of edema of the lungs and acute cardiac dilatation. The majority of our animals died suddenly of the latter cause.

We conclude that prolonged excessive secretion of epinephrin (if it occurs under pain) is not a critically important factor in the production of shock. It is therefore improbable that surgical shock is a result of excessive secretion of the suprarenals secondary to sensory stimulation.[2]

THE RELATION OF ACIDOSIS TO SHOCK

It may be recalled that some years ago a theory of shock was put forward from this laboratory which assigned the development of the condition largely to decrease in the carbon dioxid content of the blood resulting from the excessive breathing induced by ether, by pain and by fear. Since that series of papers was published, development of knowledge regarding the relations of carbon dioxid in the blood has been rapid and has laid stress first on alterations of the hydrogen-ion concentration involved and recently on alterations of the alkaline reserve. Any one discovering now for the first time that in shock the blood contains less than the normal amount of carbon dioxid would infer from present conceptions that shock involves acute acidosis. The occurrence of acidosis in connection with shock was in fact recognized in the series of papers referred to above.[3] It appeared to us important to investigate further the relations of acidosis to shock and to the excessive breathing induced by pain, and by ether.

Our experiments were carried out on ten dogs. The anesthetics used were ether, morphin, chloral and chloretone (each alone, not in combination). After a control period of from two to three hours under anesthesia, shock was induced by exposing and manipulating the intestines. In all cases the blood pressure, respiration and physical signs were observed. Low arterial pressure and absence of reflexes were taken as indications of shock.

At uniform intervals throughout the experiments, about 5 c.c. of blood were withdrawn from the carotid and collected in a test tube under a layer of liquid petrolatum. Without delay a part of this blood was analyzed for its carbon dioxid content. Another part (whole blood, not serum) was saturated with (human) alveolar air containing about 5.5 per cent. of carbon dioxid and analyzed for carbon dioxid in order to determine the "alkaline reserve" as the index of "acidosis." Samples of alveolar air were collected from the animal at frequent intervals by the Higgins-Plesch method, and the alveolar carbon dioxid tension was determined. The methods of blood, gas and alveolar air analysis employed were those described by Henderson and Morriss.[4] In two experiments the respiratory exchange (oxidative metabolism) was determined by the Douglas bag method.

Morriss[5] has recently shown that administration of ether induces a fall in the alkaline reserve as determined by the Van Slyke method, and our observations corroborate this. In all of our experiments with (open) ether anesthesia there was during the first hour the usual excessive breathing and a sharp fall both in the carbon dioxid content of the arterial blood and in the carbon dioxid capacity of the blood, followed for several hours thereafter by a less rapid but distinctly progressive and almost parallel fall in both measurements. The alveolar carbon dioxid also followed a closely similar course. There was a corresponding degree of "shock," as judged by fall of arterial pressure and absence of reflexes.

In contrast, in one experiment in which ether was administered by a rebreathing method, we found that when excessive elimination of carbon dioxid was thus in part prevented, both the carbon dioxid content, and the carbon dioxid capacity (alkaline reserve) of the blood as well as the vitality of the subject were much less reduced than under "open" ether conditions.[6]

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* From the Physiological Laboratory of the Yale University School of Medicine.

[1] Pike, F. H., and Coombs, Helen C.: The Relation of Low Blood Pressure to a Fatal Termination in Traumatic Shock, The Journal A. M. A., June 23, 1917, p. 1892.

[2] Recent observations of Mann (The Journal A. M. A., Aug. 4, 1917, p. 371) indicate also that deficiency of epinephrin (excision of suprarenals) does not produce shock.

[3] Henderson: Am. Jour. Physiol., 1910, **27**, 174.

[4] Henderson and Morriss: Jour. Biol. Chem., 1917, **31**, 217.

[5] Morriss, W. H.: The Prophylaxis of Anesthesia Acidosis, The Journal A. M. A., May 12, 1917, p. 1191.

[6] Bryant, John, and Henderson, Yandell: Closed Ether and a Color Sign, The Journal A. M. A., July 3, 1915, p. 1.

In the animals under open ether the institution of shock producing procedures had, and indeed could have, little additional effect in producing acidosis, owing to the intensity of this condition already produced by the anesthetic and its mode of administration

In view of this fact we turned to experiments under morphin (one experiment), chloral hydrate (one), and chloretone (two), since all of these drugs depress respiration and tend to produce a hypercapnia [7] In this connection we would call attention to an observation of Underhill, Blatherwick and Goldschmidt,[8] which seems to us to suggest that morphin (by means of hypercapnia?) causes a mobilization of the body's alkali

In the experiment under morphin narcosis, there was no fall, indeed a slight rise (2 per cent), in the carbon dioxid content and the carbon dioxid capacity of the blood during a preliminary or control period of two hours Shock procedures were then instituted and were followed by a rapid and progressive acidosis — the carbon dioxid capacity falling to 31 per cent — together with the usual excessive breathing, fall of arterial pressure, and disappearance of reflexes, ending in death after two hours

In an experiment under chloretone anesthesia, the carbon dioxid capacity of the blood fell during the preliminary period of three hours only from 48 (practically normal for a dog) to 43 per cent Shock was then induced One and one half hours later the carbon dioxid capacity of the blood had fallen to 30 volumes per cent The animal died half an hour later

These observations raise a crucial question as to the nature of the relation between the hyperpnea of ether excitement and of pain and the accompanying decrease of carbon dioxid combining power in the blood Which is cause and which is effect? The acapnia theory assigned a primary rôle to the hyperpnea, while the acidosis theory now current would make the hyperpnea merely secondary Does the alkali of the blood control the carbon dioxid or the carbon dioxid the alkali? In most forms of acidosis the former is the case In shock, however, the latter may in part at least be the true sequence It may be recalled that in experiments on shock previously reported from this laboratory it was found that when excessive loss of carbon dioxid was prevented by rebreathing procedures the carbon dioxid content of the blood was only slightly lowered, and shock either did not result or was much reduced in intensity These facts suggest that the acidosis of ether anesthesia is compensatory to or a result of the acapnia produced by the hyperpnea of ether excitement

Apparently the reduction of the carbon dioxid content of the blood by the excessive breathing under pain or ether excitement results either in loss of alkali (to the tissues?) or a formation or retention of other acids This acidosis, or reduction of alkaline reserve, whatever its details, is at least in respect to respiration clearly of a compensatory character, for otherwise the intense acapnia would always quickly result in a fatal apnea, as in fact it often does It is particularly noteworthy in support of this conception that in the experiment with ether in which the animal was made to rebreathe through a long tube, thus keeping the alveolar carbon dioxid tension at a nearly normal level the rate and degree of ether acidosis were correspondingly decreased

THE OXIDATIVE METABOLISM IN SHOCK

In the metabolism experiments in which observations of the oxygen consumption and carbon dioxid elimination were made before and after the production of shock, we found that the condition of shock involves a profound depression of metabolism, the oxygen consumption falling 45 per cent in one experiment and 50 per cent in another This depression of metabolism is progressive, and ends in death

The introduction of the gas mask in warfare has accustomed men to a form of apparatus with which rebreathing can be readily arranged Fortunately it is easily applicable on the only field where sufficient human material is regularly available for the study of shock By this means we hope to be able at last to get an adequate test of the very practical question, Will rebreathing prevent or decrease the development of shock in severely wounded men as it does in animals under experimental conditions?

For those already in shock and breathing feebly, rebreathing involves a dangerous limitation of oxygen In this condition, the administration of percentages of carbon dioxid approximating the normal alveolar air (by the same method that oxygen is usually given) is the measure which in the light of ten years' work in this laboratory is certainly worthy of trial

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7 Henderson and Scarbrough Am Jour Physiol 1910, **26** 274

8 Underhill, Blatherwick and Goldschmidt Proc Soc Exper Biol and Med, 1917, **14**, 83

BOTULISM

THE DANGER OF POISONING FROM VEGETABLES CANNED BY THE COLD-PACK METHOD *

ERNEST C DICKSON, M D
SAN FRANCISCO

The frequency with which food poisoning is caused by the presence of the toxin of the *Bacillus botulinus* is probably very much greater in this country than has been generally believed, and the fact that the toxin may be formed not only in foods of animal origin but also in certain vegetables and fruits has added much to the importance of recognizing its existence

A review of the available American medical literature for the past twenty years has shown that there have been at least eleven recorded outbreaks of botulism in the United States during that time, and that a least fifty-two persons have been ill and thirty-two have died from this type of food poisoning

In a personal investigation[1] of unrecorded cases of food poisoning which have occurred on the Pacific Coast during the past six years, I have located eleven more outbreaks of botulism in which twenty-nine persons were ill and twenty-three died, and in three of these I succeeded in establishing the diagnosis of botulism by the isolation of the *B botulinus* from portions of the discarded food In all, therefore, there have been at least twenty-two known outbreaks of botulism in the United States during the past twenty years (Table 1) in which eighty-one persons have been ill and fifty-five have died, a mortality of 67 9 per cent , and of these twenty-two outbreaks, eighteen have occurred on the Pacific Coast, seventeen in California, and one in Oregon It is extremely probable that there have been many more outbreaks of botulism

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* Aided by a grant from the California State Council of Defense

* From the Division of Medicine of the Leland Stanford Junior University School of Medicine

[1] The details of the clinical cases and of the experimental work will appear shortly in a monograph entitled "Botulism A Clinical and Experimental Study"

which have passed without recognition, and that if it were possible to follow up all cases of food poisoning in which the patients recovered, and all fatal cases in which the death certificates give the cause of death as ptomain poisoning or bulbar paralysis, a very large group of cases would be collected

An important feature of the recorded cases in this country and of those which I have collected is the relatively small number in which the poisoning was caused by food of animal origin In eighteen outbreaks in which the source of the poisoning was recognized, one was due to spoiled beef, one to minced chicken one to canned pork and beans one to tamales, one to sausage (wienerwurst), and two to bottled clam broth, but in all the rest, eleven in number, the food which was responsible for the poisoning was of vegetable origin, one outbreak being caused by home-canned pears one by home-canned apricots, one by home-canned corn one by home-canned asparagus, one by commercially canned beans or spinach, and six by home-canned string beans

In a series of experiments with four strains of the *B botulinus* I have been able to show that the botulinus toxin may be formed in a considerable number of vegetables and fruits In a previous report,[2] it was recorded that the toxin could be formed in mediums prepared from canned string beans and canned green peas, and in later experiments[1] which are not yet recorded in detail, it was found that that toxin may also occur in mediums prepared from green corn, artichokes, asparagus, apricots and peaches, to which no trace of animal protein was added

TABLE 1—KNOWN CASES OF BOTULISM OCCURRING IN THE UNITED STATES

Date	No of Cases	No Fatal	Name of Physician	Address	Source of Poisoning	Reference in Literature
1899	1	—	Lewis	Los Angeles	Tamale	South California Pract **14**, 464
1903	7	3	Jellinck	San Francisco	Beef	Calif State Jour Med **1**, 121
1907	3	3	Sheppard	Ontario Calif	Canned pork and beans	South Calif Pract **22**, 370
1910	12	11	Peck	Sawtelle Calif	Home canned pears	South Calif Pract, **25**, 121
1911	5	5	Twining	Aspen Colo	Canned beans	Cited from Curfman
1912	3	2	Lartigau and Rine	San Francisco	Bottled clam broth	Personal communication
1912	2	1	Holbrook	San Jose Calif	Bottled clam broth	Personal communication
?	6	5	Phillips	Amador County Calif	Home-canned string beans	Personal communication
1913	12	1	Wilbur and Ophuls	Stanford Univ Calif	Home-canned string beans	Arch Int Med, Oct 15 1914 p 589
1913	1	1	Sperry	Hornbrook Calif	Unknown	Personal communication
1913	1	—	Stiles	Boston	Minced chicken	The Jour A M A Dec. 27 1913 p 2301
1915	5	5	Pratt Reid and Nichols	Fallbrook, Calif	Home-canned apricots	Personal communication
1915	1	1	Gundrum	Sacramento Calif	Home-canned asparagus	Personal communication
1915	1*	1	Hyde and Barrett	Hillsboro Ore.	Home-canned corn	Personal investigation
1915	2	2	Fros	Los Angeles	Sausage	Am Med, N S, **10**, 85
1915	1	1	Frost	Los Angeles	Unknown	Am Med, N S **10**, 85
1916	1*	1	Holbrook	San Jose Calif	Home-canned string beans	Personal investigation
1916	1	1	Bigelow	San Francisco	Unknown	Personal investigation
1916	1	—		*Escondido Calif*	Home-canned string beans	Personal investigation
1916	1	—	Lancaster	Boston	Unknown	Tr Am Ophth Soc. **14**, 648
1917	7	5	Curfman	Salida Colo	Canned beans or spinach	Colorado Med, **14**, 35
1917	7*	4	Crise and Smart	Escondido Calif	Home-canned string beans	Personal investigation

* The B botulinus was recovered from remnants of the discarded food

As a result of the shortage of the world's food supply at the present time, there has been a widely advertised propaganda urging that sufficient vegetables and fruits be canned at home to provide for the winter's supply of food There have been numerous articles in the daily press and in magazines in which the federal authorities have advocated the use of the cold-pack method of canning vegetables and fruits Various methods of sterilization are described in these reports, but the one which can be most readily adopted by the housewife is that of heating the filled jars in a wash boiler at the temperature of boiling water Tables are given in which the time necessary for heating the different vegetables and fruits is stated

In order to test the efficiency of the cold-pack method of canning vegetables which may be contaminated with spores of the *B botulinus*, a number of jars of peas, beans and corn were prepared according to the directions described in the daily press (Table 2) Each jar was inoculated with an emulsion containing spores of the *B botulinus* before it was placed in the wash boiler * The one quart jars of peas and beans were left in the boiling water for 120 minutes, and those of corn were heated for 180 minutes The jars were sealed immediately after removal from the boiler and were inverted and placed in a dark closet

Within three weeks it was noted that the contents of all the jars had undergone a fermentation with the formation of gas, and that some of them were leaking. When the jars were opened there was a strong odor which resembled butyric acid, and cultures of the juice from all the jars showed a mixture of *B botulinus* and *B subtilis* Portions of the juice from all the jars were injected into guinea-pigs, and some of the peas were fed to a chicken All the guinea-pigs died within twenty-hours, and the chicken developed symptoms of limber-neck and died within thirty hours A portion of the juice from the corn was passed through a diatomaceous filter and injected into a guinea-pig, and the animal died within twenty-four hours The symptoms of all the guinea-pigs and of the chicken were identical with those produced by the toxin of the *B botulinus* which is formed in meat broth

The results of this series of experiments prove that the cold-pack method of canning vegetables is not efficient if the raw material happens to be contaminated with spores of the *B botulinus* The fact that both *B subtilis* and *B botulinus* were recovered in cultures from the contents of the jars proves that a single sterilization for the time recommended in the published directions is not sufficient to cause the destruction of spores Fortunately, the number of spore-bearing bacteria which are responsible for producing poisonous changes in food is small, but the *B botulinus* belongs to this small group, and since it is also an obligative anaerobe, the conditions which exist in the sealed jar or can are ideal for its growth and toxin formation

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[2] Dickson E C Botulism An Experimental Study A Preliminary Report The Journal A M A, Aug 15 1915 p 492

It is probable that many persons have followed the directions which have been so widely distributed, and that large quantities of vegetables and fruits have been canned at home by the cold-pack method It is also probable that a very small percentage of the total number of cans or jars of food are contaminated with spores of the *B botulinus*, but the fact that botulism has occurred so frequently during the past few years, especially on the Pacific Coast, makes it necessary that all susceptible foods which have been prepared by this method should be regarded with suspicion

TABLE 2—DIRECTIONS FOR HOME-CANNING OF VEGETABLES DESCRIBED IN THE DAILY PRESS*

	Scald or Blanch	Hot Water Bath Outfit 212 F	Water Seal Outfit 214 F	Steam Pressure 5 10 lbs	Pressure Cooker 10 15 lbs
	Minutes				
Corn on cob or cut off	5	180	90	60	45
Beans, lima or string	5	120	90	60	40
Peas	5	120	90	60	40

* Abstracted from a table which appeared in the daily press, reported to be a letter dispatch from the Department of Agriculture, Washington D C The directions differ from those given on page 17 of Farmers' Bulletin 839, entitled "Home Canning by the One Period Cold Pack Method," in that the time for heating peas at 212 F is given at 120 minutes instead of 180 minutes

The botulinus toxin is easily destroyed by heating, and all danger of botulism will be removed from home-canned products if the food is always boiled before it is eaten or even tasted Under no circumstances should home-canned vegetables which have been prepared by the cold-pack method be served as salad, unless they have been cooked after their removal from the container, and, until it is established what fruits are suitable for the formation of the toxin, it will be safer to reheat all fruits which have been prepared by this method, even though there may be no apparent evidence that the food has spoiled

2294 Broderick Street

Soap in Treatment of Wounds—Patynski has obtained very satisfactory results from the use of soap He has always made use of the Marseilles soap of commerce, of good quality, and standardized at 72 per cent This he has employed in the way of lavages, irrigations, and local applications in the form of saturated compresses For the lavages and irrigations, he utilizes a solution of 25 gm to the liter of water, either sterilized or simply boiled The standard strength may even be raised to 5 per cent without any resulting inconvenience Compresses are prepared by soaking in a 20 per cent solution The soap is sterilized after grating into powder, by exposure in an oven to a temperature of 120 C. for an interval of five minutes In cases of special urgency the surface of a piece of soap is asepticized by plunging the mass into boiling water Also, under similar circumstances, the ordinary muslin compresses can be reliably replaced by some other tissue previously boiled These preparations have always been readily tolerated by the skin, and have not produced any signs of local irritation, even after a continuous application of four, five or six weeks The technic is described in detail in the *Medical Press and Circular*, Aug 15, 1917

THE STIFF AND LAME SHOULDER*

C HERMANN BUCHOLZ, M D
BOSTON

Proper function of the shoulder depends on the intactness of the humeroscapular joint, both clavicular joints, the subacromial bursa and other periarticular structures, and the muscular mechanism The humeroscapular joint allows a great amount of motion, which, however, is checked to some extent by the acromion, in order to give sufficient stability and strength Again, a great deal of motion which is checked by the acromion is compensated by the mobility of the scapula, which swings around the clavicular joint and is regulated by the complicated muscular apparatus

The great frequency of lame and stiff shoulders is easily explained by their complicated apparatus, and by their free exposure to strain and injury For the latter reason, it is evident that the periarticular structures, especially the subacromial bursa, are much more frequently affected than the humeroscapular joint itself, a fact which the investigations of Kuster and Codman have clearly demonstrated It is particularly through Codman's effort that we have learned to approach certain affections of the shoulder with the knife, and the chances of necropsy have, in turn, helped to give us clearer ideas about the physiology and pathology of the shoulder In this paper I shall attempt to outline the indications for the treatment, both operative and nonoperative, in those various types of stiff and lame shoulders that come under our observation The second part contains a description of the conservative method of treating stiff shoulders

1 *Acute Subacromial Bursitis*[1]—These cases are best treated with rest, preferably with the arm held in a sling or supported in the abducted position This may be done by simply having the arm rest on a table, or, during the night, somewhat elevated and abducted on a pillow As soon as the most acute symptoms are over, a mild application of hot air and massage will help to relieve the pain and discomfort Then the patient may begin to use the arm, and special treatment for the recovery of the function is generally unnecessary There are, however, a number of patients who hold their arm in a certain muscular spasm, instinctively induced by fear of painful motion In many of these cases, the condition is easily relieved by a few gentle assistive movements in the lying position We have frequently seen patients who had not dared to move the arm for weeks, and complained of a great deal of pain from any attempt to raise the arm or to put it on the back In such cases, it is sometimes surprising for the patient as well as the operator to notice the relief from pain and discomfort by a few simple movements gently guided, from the lying position, or by the following simple exercise recommended by Codman The patient leans over, forward or sideways, and lets his arm hang down perpendicularly with the muscles completely relaxed Easy swinging motions may be added from that position Once started in such a way, movements of the arm will be quickly restored, provided there is no serious lesion of the shoulder joint or bursa present

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* Read before the Section on Orthopedic Surgery at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

[1] The headings and the indications for treatment in Types 1, 2 and 7 are taken from Codman's classical monograph

2. *Subacute or Chronic Adherent Subacromial Bursitis*.—These cases are very frequent. We see at least 100 every year in the medicomechanical department, and many of them represent difficult problems. In the great majority, however, correct exercise, aided by massage and application of hot air, will give good results, though the treatment often requires a long period. As there is a tendency to hyperirritation, it is advisable to begin with treatment of short duration. The technic will be discussed in detail in the second part. When the adhesions prove to be too firm to be loosened by simple manipulations, forcible breaking up under an anesthetic may become advisable, or it may be necessary to open the bursa. We approve of Codman's advice to do even the forcible manipulations under the careful guidance of the finger after the bursa is opened, as evidently less harm is done in that way. From our experience, however, it must be stated that with advanced technic of the exercise treatment those cases have become quite rare, and forcible manipulation in this type of cases is performed in our clinic but very exceptionally.

3. *Stiff and Lame Shoulders Following Injuries of the Upper Extremity*.—A large percentage of stiff and lame shoulders follows injuries to the shoulder region itself or any other part of the upper extremity. In many of these cases, stiffness could be prevented by proper consideration of functional principles during the first weeks after the injury, principles which have been outlined in detail elsewhere.[2] The stiffness in these cases is caused not so much by adhesions as by retraction of the muscles and the periarticular structures, and from the commonly used method of fixing the injured arm in the adducted and inward rotated position. The retraction is mostly seen in the inward rotator muscles and in the structures in front of the shoulder joint. These retracted tissues generally form a very serious and sometimes insurmountable obstacle to mobilization, and we have seen many cases of this type in which the patients did not regain the function of the shoulder in spite of very persistent and long continued after-treatment. In these cases all depends on the recovery of a certain degree of external rotation; if this succeeds, the other motions will usually follow.

Operative procedures will hardly help much, and forcible manipulation has not given any single good result in my experience. Moreover, it is dangerous, as we have seen a spiral fracture of the humerus, complicated with paralysis of the musculospiral nerve, in a case in which a forcible attempt at external rotation was made. As elsewhere in the body, following injuries, the scarlike, retracted tissues may become so tight that in an attempt to stretch them the atrophic bone gives way rather than the soft tissues. Any one familiar with the nature of these retractions can not doubt that quick stretching will mean more or less laceration of tissue, and hence renewed injury with all its deleterious consequences. As I have stated above, however, by persistent, frequently repeated stretching manipulations, good success can be obtained, provided the alteration of the tissues has not been too severe.

4. *Infectious Arthritis of the Humeroscapular Joint*.—Previous to the publications of Kuster and Codman, cases of painful and stiff shoulders have been generally classified as "arthritis," or as the still frequently used term "omarthritis." We know now that the majority of these cases cannot be considered as arthritis in the strict sense of the word, but as periarthritis or bursitis. The differential diagnosis between the two affections cannot be made in all cases by the clinical examination of the affected part alone, but only with sufficient consideration of the history and other manifestations of the disease. Monarticular arthritis generally leads toward several definite channels in regard to the nature of the affection, such as tuberculosis, gonorrhea, septic infection, osteomyelitis, and a few of rarer occurrence. These types can be ruled out in most cases without great difficulty, though we have seen cases in which only by long observation or by opening the joint could the diagnosis be made certain.

In polyarticular arthritis, involvement of one or both shoulders should be primarily considered as true arthritis, although the bursae may be likewise affected, and in the treatment for functional recovery this bursitis may cause more difficulties than the arthritis itself, as I have repeatedly noticed. The indications for functional treatment in arthritis are similar to those outlined under headings 1 and 2, only with sufficient consideration of still greater care and gentleness. That in all these cases etiologic factors are sought for and eliminated if possible is understood, and requires no further discussion at this place.

5. *Tuberculosis of the Shoulder Joint*.—Tuberculosis of the shoulder joint may appear as the proliferative fungous type, or as the degenerative dry type, tuberculosis sicca. The former is generally easily recognized, and with the presence of an abscess or sinuses, there can be no doubt as to the diagnosis, but in the other type the difficulties may be great unless the Roentgen ray shows definite signs of destruction.

Generally, however, the atrophy of the muscles and bones is much more pronounced than in any of the other types. In case of doubt, the general and local reaction by injection of tuberculin should be tested, and no exercise recommended before the diagnosis of tuberculosis has been ruled out definitely. The treatment of tuberculosis of the shoulder joint will not be considered in this paper.

6. *Hypertrophic Ostearthritis*.—Many cases of stiff and lame shoulders are caused by hypertrophic ostearthritis. It must be remembered, however, that very often it is not so much the affection of the shoulder joint proper which causes most of the trouble, but the bony proliferation over the tuberosity, as several observations have undoubtedly shown. Strange to say, this point has found very little attention in the literature. The publications on "arthritis deformans of the shoulder joint" which I have read do not mention the proliferations of the tuberosity or their close relation to chronic bursitis. I advise looking for these affections in all elderly persons. Generally they cannot be felt from the outside, and even the Roentgen ray does not always give a distinct idea about their size and location. All that we can make out on the plate is the density of the structure of the tuberosity. Generally there are other signs of ostearthritis seen on the roentgenogram, such as proliferations at the acromioclavicular joint, the lower edge of the glenoid process, and elsewhere. It lies in the nature of the mechanics of the shoulder articulation that bony proliferations nowhere so retard the function of the arm as those over the tuberosity. The

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[2] Bucholz, C. H.: Manual of Therapeutic Exercise and Massage, and several other publications.

shoulder capsule itself is fairly loose, and needs considerable alteration before the function of the arm is so much handicapped as to be alarming to the patient. The same is true for the acromioclavicular joint; proliferations over the tuberosity, however, represent a much greater danger for the function, because, after having reached a certain size, they will materially narrow the space between humerus and acromion. Moreover, hypertrophic ostearthritis stamps the tissues affected to a much greater susceptibility to traumatic damage. The tuberosity, anyway one of the most frequently injured parts of the body, when inflicted with the changes of ostearthritis, is likely to react much more violently than under normal conditions.

Of still greater importance, however, is the intimate connection of those proliferations over the tuberosity with chronic inflammation of the bursa. We may even say that the amount of pain and discomfort depends more on the consequent bursitis than on the bony proliferations, while the amount of stiffness is the result of both these factors in addition to the condition of the capsule and the other articular and periarticular structures.

Without discussing the general principles of treatment in these cases, I shall briefly state my opinions in regard to the local treatment. Any evidence of hypertrophic arthritis in a case of stiff and lame shoulder leads us on a very conservative track. We should avoid all irritative measures; applications which in other cases act soothingly may cause irritation in a hypertrophic shoulder. Therefore we give baking of shorter duration than usually, apply massage with less force, and do not use that deep friction over the bursa which is so effective in many other cases. Exercise is used chiefly in form of gentle resistive movements with careful guidance of the finger over the tuberosity.

We have operated in two cases, which are briefly outlined.

Case 1.—A strong and healthy laborer, aged 46, who had injured his left shoulder five years before without lasting symptoms, complained of considerable pain in the same shoulder for one month which, starting after a hard day's work, prevented him from work and often kept him awake at night. At the operation the subacromial bursa was found somewhat inflamed and its walls slightly thickened, but the most conspicuous feature consisted in a number of bony proliferations along the crest of the tuberosity. In abduction and elevation the space between the humerus and acromion was markedly narrowed, and therefore some of the most prominent proliferations were removed from underneath the floor of the bursa. There was no immediate relief from the operation, but the condition improved gradually by baking and massage for several weeks.

Case 2.—A rather feeble and sickly looking man, aged 55, who was run over by a light wagon six months previously, had since that time suffered from pain and stiffness in his shoulder which did not respond to the usual conservative treatment. He had a certain amount of hypertrophic arthritis in this and other joints, as shown by the Roentgen ray. On account of his general poor health, the subacromial bursa was opened under local anesthesia. The bursa was inflamed and slightly thickened, the walls were partially glued together about the edges, and a few soft bands were stretched from the inner to the outer wall. Marked bony proliferations were noticed along the crest of the tuberosity, and in moving the arm it was quite evident that the motion was mostly limited by the bony overgrowth. This was not removed because of the patient's condition, but the soft tissue adhesions were gently loosened and the bands excised. The patient was subjectively much relieved, though the function of the shoulder was not much improved.

7. *Chronic Nonadherent Subacromial Bursitis (Codman's Type III).*—These cases, which represent approximately 5 or 10 per cent. of all our cases of bursitis, are characterized by a more or less constant pain and soreness, which is most intense in forward elevation with inward rotation, often leading to a spasmodic contraction of the shoulder muscles to avoid painful motion. The basis of these symptoms consists of thickening of the bursae, fringes, bands or other pathologic products which obstruct the tuberosity on its way underneath the acromion. It is obvious that a simultaneous ostearthritis may still increase these symptoms, and in most cases it may not be easy to state definitely which of the symptoms is due to one or the other. However, the roentgenogram, the amount of mobility beyond the horizontal line and ostearthritic manifestations in other joints may allow a certain conclusion.

At any rate, in cases with a definite manifestation of ostearthritis, a certain conservative reservation should prevail, while in the others operative repair may be suggested as the quickest and surest way to recovery, although, as Codman states, many of these cases heal in time without any treatment. Baking and massage may relieve the pain; exercise in any form is contraindicated.

The following cases seem to belong in this class.

Case 3.—A laborer, aged 45, fell from a ladder six months previously, landing on his left shoulder and hip. Since that time he had had pain and discomfort at night and in moving the arm. The motion was almost free except in extreme inward rotation, but there was marked crepitation in abduction, and tenderness over the bursa. At the operation, two bands were found stretched between the inner and the outer walls of the bursa, which was otherwise somewhat inflamed and slightly thickened. The bands were removed and the operation was followed by a quick and perfect recovery.

Case 4.—A farmer, aged 56, who had injured his right arm eight years before, complained that he had had pain at the right shoulder, radiating downward to the elbow at night and in moving the arm, for about four years. At the operation five small villous tabs were found on the posterior wall of the bursa near the crest of the tuberosity. These were removed, and the operation was followed by a perfect recovery within a few weeks.

8. *Lime Salt Deposits at the Subacromial Bursa.*—More has been written of these cases than of all other types of subacromial bursitis, and still a certain dissension of opinions exists in regard to the seat and nature of these deposits and their best method of treatment. In regard to details of this discussion, I refer to the papers of Codman, Brickner, and others and shall but briefly state my own experience. I have studied only four cases of this type, in two of which I have operated. In both cases the deposits were beneath the floor of the bursa, in one, seemingly in the tendon sheath of the supraspinatus, while in the other, that part of the tendon which is nearest to the insertion was perforated like a sieve, the holes being filled with caseous deposits. Both these cases, therefore, support Brickner's statement that the lime salt deposits have their seat in the tendon of the supraspinatus or other tendons or their sheaths. In both cases the deposits have been scraped out as much as possible, but the end-results have been very unsatisfactory, in regard both to pain and to function. This experience has led me to choose a conservative treatment in two other cases in which there has been a perfect, or almost perfect, recovery.

9 *Rupture of the Supraspinatus Tendon and the Roof of the Capsule of the Shoulder Joint*—Codman has shown that these cases are more frequent than has hitherto been believed, but we are still far from knowing definitely how frequent they are, as their diagnosis is often quite difficult Risley goes so far as to set a time limit of three months Careful observation however has enabled us to make the diagnosis in one case fairly early Two patients entered the outpatient clinic on the same day with almost the same history, and very similar symptoms Both reported a severe strain of the shoulder a few weeks previously disabling the arm completely as far as elevation and abduction were concerned Both were suspected to have a ruptured supraspinatus, and I treated them with massage and very gentle active-passive movements In one case the symptoms cleared up within three or four days and the patient was completely relieved within two weeks whereas in the other the lack of action elevation and abduction persisted, and the pain was not much relieved In the latter case, therefore an operation was done which revealed rupture of the supraspinatus tendon

REPORT OF CASES

CASE 1—A healthy man aged 50 injured his left shoulder three months previously In lifting a heavy harness above his head to a rack his foot slipped and he felt something give way in his left shoulder He managed to lift the harness up on the rack but afterward could not raise his arm His left shoulder was sensitive and showed almost complete absence of active and passive motion A diagnosis was not made until after several weeks treatment a certain amount of passive motion was restored but active function did not return along with the passive motion

An operation was therefore advised, the subdeltoid bursa was opened in the usual way and after exposure of the subacromial space it was found that the supraspinatus tendon was torn loose from its insertion for about two thirds of its width There was also a large hole in the capsule so that the subacromial and the shoulder joint connected through a hole the size of a quarter The torn ends of the capsule and tendon were sewed down to the tuberosity, and the arm put up in abduction for about five weeks

Motions of the arm were begun two weeks after the operation, and within six months the patient s shoulder was perfectly restored as to motion and strength

CASE 2—A healthy man, aged 60 while pulling on a truck two weeks previously received a severe pull on the shoulder and felt something give way This was followed in two days by another injury to the shoulder and the patient was forced to stop work on account of the severe pain which radiated down from the shoulder to the outside of the elbow He said that he had had a certain limitation in motion of the right shoulder for a year, and occasionally little pain The patient was unable to raise his arm actively, but in stooping over could abduct his arms almost to right angle without pain There was a painful swelling over the right shoulder

Roentgenoscopy revealed hypertrophic changes about the greater tuberosity and at the acromioclavicular joint and a free mass in the latter joint

On account of these signs, the diagnosis of rupture of the supraspinatus was made and operation advised Operation was performed by Dr R B Osgood using the 'saber-cut" incision across the acromion and through the acromioclavicular joint The roof of the bursa was adherent to the deltoid The capsule was seen to be ruptured and the supraspinatus found to be torn off at its attachment to the bone. The tendon and capsule were sutured by silk and kangaroo tendon

After-treatment was started as in Case 1 but the functional recovery was not quite as satisfactory, probably on account of the marked hypertrophic changes

CASE 3—A bartender, aged 53, was struck by an automobile five months previously He was unconscious for a few moments, but thinks that the automobile struck the right shoulder directly He went to a surgeon, who made a diagnosis of dislocation of the humerus, and replaced it under ether A Sayre adhesive dressing was applied for five and one half weeks without change, leaving the whole arm stiff from the shoulder to the fingers When the patient entered the hospital, therefore, the correct diagnosis was not possible, but when, by persistent treatment with massage and exercise, the passive mobility had been improved to a certain extent, but active abduction still was impossible, the diagnosis became suggestive of a ruptured supraspinatus, and operation was advised

The clinical picture was complicated by an unreduced dislocation of the acromioclavicular joint, the outer end of the clavicle riding almost over the acromion The Roentgen ray revealed hypertrophic arthritis with intensive spur formation on many joints including the acromion, with bony atrophy of the head of the humerus and the glenoid process

The subdeltoid was opened as in Case 1 There was a very extensive laceration of the supraspinatus and capsule, making a connection between the bursa and joint almost the size of a silver dollar By the unreduced dislocation of the clavicle, the replacement of which was not attempted, the space was markedly narrowed and the torn tendon and capsule were markedly retracted so that only with great difficulty could silk strands be passed through its edges Even with full abduction complete apposition seemed hardly possible

After-treatment was begun in a way similar to the first case, and the patient made a good recovery though a certain amount of stiffness persisted Six months after the operation, however, he was able to raise the arm with considerable strength far beyond the horizontal line, and used the arm almost as before

THE CONSERVATIVE METHOD

The technic of conservative treatment of shoulder lesions is not so easy as is frequently believed, and from our experience with more than 2,000 cases, we venture to say that, perhaps with the exception of the hand, there is no articular mechanism of the body to which more harm is done by irrational treatment A glance at the anatomy of the subacromial bursa and its function will make this at once evident In abduction and elevation of the arm, the tuberosity of the humerus has to glide more or less underneath the acromion, and it is the function of the bursa to make this motion possible It acts almost like a joint, and may be justly considered a semijoint As we can see on the opened bursa, the space between the acromion and the humerus shows considerable variation in different positions With the arm hanging down, and the humerus inwardly rotated, the space is quite large, allowing the finger to pass between the bones The more the arm is rotated outward, the smaller the space will become, but still a fairly good sized space exists even in full outward rotation

With elevation of the arm, the mechanical relations of the humerus and acromion change considerably Here, just on the contrary, the space is relatively greatest with the arm in outward rotation, while with the arm inwardly rotated and elevated the space becomes so narrow that hardly a probe can be passed between the humerus and the acromion These are the relations under normal conditions When the walls of the bursa and the adjoining structures are changed in thickness, the space between the bones may change considerably

When examining a stiff shoulder for the first time, it is, offhand, difficult if not impossible to obtain a clear idea about those relations of the bones, and only by careful observation do the mechanical conditions become distinct Another point will also be evident, namely, that the chances of recovery of the elevation are the better the more free the rotation Hence the prognosis is generally better when the rotation is not, or not much, restricted than when both elevation and rotation are limited Cases in which the elevation is free and the rotation greatly restricted are rare We see them sometimes in the after-care of cases which have been treated for some time with immobilization in full abduction when motion in the frontal or sagittal direction has been restored first

These anatomic remarks may give a certain idea of the great variability of the subject, and may prove that each case needs individual attention and careful study Often it is only by prolonged observation that we obtain a certain knowledge of the mechanical conditions Admitting, therefore, the difficulty of giving routine prescriptions, I shall try to outline the method of treatment as it is carried out in our clinic In a case in which motion is limited in all directions, the first rule is to find out how much of the restriction is due to muscular contraction, and how much to adhesion or retraction of tissues Examination of the function of the shoulder at first in the standing and then in the lying position may give a certain idea of the amount of muscle spasm, as in the latter position, by means of more favorable leverage conditions, the deltoid and supraspinatus muscles can work with less strain to the bursa and joint, and this difference will often become more obvious after the pain-lessening application of hot air and massage We remember patients who, at the first glance, showed a perfectly stiff and rigid shoulder, but gained motion of 40 or 50 degrees during the first treatment The prognosis in these cases is generally good, but one must take great care to give the treatment a soothing character, and avoid all rough handling Hot air should be applied for not more than fifteen minutes with a temperature of not more than 180 F

The exercise should be done as slow resistive or assistive movements, and at least in the beginning not beyond the range of discomfort, that is, when rotation is 50 degrees free, the resistive exercise should not be done more than 45 degrees When in such a case the stage of muscular restriction is passed, and that of adhesions or retraction is reached, greater force may be applied, provided lasting pain is avoided

The treatment then will be carried out in the following way

The shoulder is baked for fifteen minutes, followed by a gentle rub, massage applied to the muscles of the shoulder and upper arm Then the patient is placed on a couch or table with a pillow under the head and shoulder, and a smaller pillow under the elbow, thus bringing the humerus in a horizontal position The operator, standing on the side of the affected shoulder, grasps with one hand the patient's forearm, which is flexed in the elbow, while the other hand steadies the scapula, and at the same time one finger rests on the acromion and another on the tuberosity for an exact control of the motion Now the operator demonstrates to the patient inward and outward rotation, and makes at first a few light active exercises Then three or four slow resistive movements are made with complete relaxation of all muscles after each single movement A few gentle massage manipulations follow, and such are frequently repeated especially with those muscles which show most tendency to spastic contraction Then, in the same slow manner, abduction, elevation and combined motions are practiced with the fingers, carefully guarding the effect of these exercises on the tuberosity, and its relation to the acromion in every single step

With progressive improvement, the range of motion and the force applied to the resistances may be increased, and quicker motions, pendulum and other apparatus, cane and pulley exercises, applied as the case may require, but we advise against a too early use of such appliances because they are likely to act irritatingly on the bursa, causing pain and muscle spasm and restriction of motion

These represent the majority of cases of subacute or chronic bursitis, and a certain part of cases of infectious arthritis In those cases in which adhesions and retraction of tissue are chiefly responsible for the treatment, the prognosis depends, of course, on the actual changes, but even here, by persistent resistive exercise, concentric and eccentric, good function can be restored The fact that within the last year or two we have not had occasion to use forcible manipulation under an anesthetic may serve as proof that we have been sufficiently satisfied with our conservative method Two patients who seemed to respond rather slowly had been manipulated in my absence, but were evidently not relieved, on the contrary, the enormous aggravation of the pain and muscular rigidity following the manipulation has furnished us renewed proof of the great superiority of the slower, conservative method which, in most cases, will prove the quickest in the end

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ABSTRACT OF DISCUSSION

Dr Walter Truslow, Brooklyn It is rather unfortunate that the reader of the paper could not have had opportunity to develop his full classification I was interested, however, to note that in the first part the paper failed to give us the etiologic background of some of the conditions dealt with. I want to speak strongly of the use of massage, muscle training and gymnastic work, which Dr Bucholz so liberally uses The oculist objects to the indiscriminate sending of patients to the optician, and rightly so, the orthopedic surgeon objects to the ignorant sending of patients to the bracemaker with instructions to make a brace for some part of the body, and rightly so We all object to the attitude of the osteopath, the chiropractor and others, in claiming everything for gymnastics and passive motions, and rightly so, but do we do our duty in the matter? Do we train ourselves to do this work properly? As muscle training and massage are so valuable for many orthopedic conditions, should we not train ourselves to do them?

Dr Bucholz points out that massage and passive motions for the stiff shoulder must begin slowly, carefully and progressively The medically trained man must actively supervise this

Dr Walter M Brickner, New York I think that Codman's classification of subacromial bursites into acute adherent, chronic adherent and chronic nonadherent types which Dr Bucholz has adopted, has no basis in the pathology of this condition I would ask both of these gentlemen whether they have ever *seen* a chronic subacromial bursitis that was not adherent I have operated in eighteen of these cases in all stages, acute and chronic, and in every one of them the bursal walls were adherent! The mere absence or presence of adhesions is not to be hypothecated on the basis of motion or lack of motion Nonadherent subacromial bursitis has not been demonstrated The adhesions of the bursal walls can be shown very clearly, with the location and the extent of the lime deposits that are found, underneath the bursa, in many cases These adhesions may be found and the symptoms may be present, whether there is a lime deposit or not On the other hand a lime deposit in the supraspinatus tendon is occasionally found without any bursitis

As Dr Bucholz mentioned Codman suggested a gravity test and a gravity exercise in these cases, in order to overcome the limitation of abduction namely, having the patient bend forward with the arms dependent I have tried this, and found that it did not work out well I think that the automatic abduction method in bed, which I described two years ago and which usually works rapidly and well is much better Instead of attempting to use the gravity of the arms, I use the gravity of the body The moment the patient is recumbent, there is an improvement in the abductibility of the arms I have the arm abducted on pillows as far as the patient can comfortably abduct it himself, fasten it in that position by a sling to the head of the bed, elevate the head of the bed and let the patient alone As the body slips down gradually in bed the patient's arm goes up The result is that frequently a patient who has not been able to raise his arm more than 45 degrees in six months can in one or two days abduct it completely This accomplished exercises follow If this method fails, the patient needs other treatment I have read with great pleasure the book of Dr Bucholz on massage, especially the chapter on the treatment of shoulder derangements I have not been convinced, however that massage does the work In the cases recorded in his book the recovery was slow, it took several weeks With the automatic abduction method in bed you will often accomplish this in two or three days It seems to me that it was not the massage in Dr Bucholz's cases but the gentle passive movements and the encouraged active movements that accomplished the results

Dr. Wallace Blanchard Chicago I had the pleasure of seeing Lieut-Col Robert Jones make instantaneous reduction in a case of chronic subdeltoid bursitis the patient being a colonel in the British Army and 50 years of age He had not been able to lift his left elbow level with the axilla for ten years Robert Jones said that relief of these cases was rapid and easy He stood the patient with his back against a door casing with his left hand he steadied the patient's right shoulder and proceeded with his right hand to push the patient s left elbow back until he had thrown the head of the humerus forward onto the anterior rim of the glenoid cavity In about two seconds Jones said "You are cured Come again tomorrow and swing your arms" The colonel came back the next day and could swing his left arm freely in all directions That was an instantaneous cure

Dr. Melvin S Henderson Rochester Minn I should like to emphasize what Dr Blanchard has spoken of I have often seen Mr Jones treat cases in that manner and I have myself treated them in that way Give the patients a few whiffs of ether until they get primary anesthesia and then put the arm up sharply and break the adhesions This is to be followed by active motion I agree with Dr Bucholz that muscle training etc., is a good thing but it takes much time and attention, and you can by this method of Jones' practically cure patients within twenty-four hours

I wish to relate the case of a man of 50 who came to the clinic six months ago and showed a stiff shoulder that he had had for six months I suggested manipulations but he said that he could not spare the time He was a farmer and the next week while descending the hay loft ladder his foot slipped and he fell necessitating his weight being sustained by his injured shoulder His arm immediately straightened out, he felt the adhesions break, and within two weeks he was absolutely well

I think that the question of the bursa that Dr Bucholz wrote of is very interesting In some cases, the bursae are affected, while in some other cases the injury is about the joint and there are adhesions

Dr. E. D Oppenheimer, New York In the clinic here we have large numbers of cases of the mild type, but not of the severe form that Dr Bucholz has spoken of, and I think that we see early cases of disability from this cause We are not able to make the diagnosis of its being limited to the subdeltoid bursa, and I think that periarthritis of the shoulder is a more correct term, because, in all these cases, the symptoms are pain and sensitiveness over the anterior part of the shoulder, inability to make full abduction and an area of paresthesia corresponding to the distribution of the circumflex nerve Some of these cases present concretions in the shoulder joint I do not think that we can draw any inferences with regard to the presence of this calcareous concretion We try to use the abduction treatment Few of the patients are sick enough to stand the restriction of having their arms in the abduction splint

What has been said with reference to stretching of the joint applies only to the older cases, in which the disease has passed and adhesions alone are causing the disability I believe that the larger number of shoulder cases are instances of the mild type and that no positive diagnosis can be made

Dr. Roland Meisenbach, Buffalo In considering our shoulder cases, I believe that we should carefully decide whether we are dealing with a real and primary traumatic shoulder, or whether we have an early diseased joint I have found that the symptoms of an early osteo-arthritis, and also of an early tuberculous shoulder joint, may be the same as those of the traumatic, this is especially true of the traumatic bursitis class

Dr C. Hermann Bucholz, Boston In regard to Dr Brickner's statement about our inability to recognize any nonadherent type, I would say that I think we can recognize nonadherent bursitis as a clinical type to some extent I have operated on several patients without limitation of motion, and found adhesions, so I will admit that, from a pathologic point of view, we should not consider this type, but still I agree with Codman that clinical observations justify us in making such a group

In regard to the time required for the treatment, I admit that I see, in my department the worst cases Patients are sent to me from other departments, frequently after not having well responded to quicker methods The problem is quite large, for example, stiffness resulting from fractures or other injuries of the shoulder cannot, as a rule, be relieved by such quick methods as Jones and others recommend In these cases we have to do with the actual retraction of the tissues, and these retractions are sometimes very hard

PRESERVATION OF COMPLEMENT

A PRELIMINARY REPORT

B W RHAMY, M D
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In making routine Wassermann tests, a considerable factor of the necessary preliminary work is the killing of at least two guinea-pigs a week for the necessary fresh complement As all serologists know, complement kept in the ice box can be used only on two successive days, after which its activity rapidly decreases, and anticomplementary substances develop in the guinea-pig serum A reliable method, therefore, for preserving complement, which would not interfere with the working of the Wassermann test, would be a great saving of time, expense and guinea-pigs

Several methods have already been tried Noguchi dried guinea-pig serum on filter paper, but this proved to be worthless Freezing (—15 C) is said to be effectual, but most laboratories are not equipped to produce this temperature Extra sedimentation has been claimed to prolong complement activity Austin[1] advocated 40 per cent dilution of guinea-pig serum in 25 per cent sodium chlorid solution, but this method did not survive In my hands it was unsatisfactory and was soon dropped (Salt in excess is inhibitory)

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[1] Austin F D A New Method for Preserving Complement for Making the Wassermann or Noguchi Blood Test *The Journal A. M A*, March 14 1914 p 868

In the hope of finding some substance which would preserve complement adequately, I systematically tested a great number of substances for hemolytic and anticomplementary activity. It was found that sodium acetate, chemically pure, possessed no hemolytic power and did not interfere with the hemolytic system, even when present in excess or in crystalline form. A tentative solution of 10 per cent. sodium acetate in 0.9 per cent. sodium chlorid solution was prepared and repeatedly tested for hemolytic power and anticomplementary action with negative results each time. This solution was then used as a diluent for guinea-pig serum in preparing the usual 40 per cent. dilution for complement and *parallel* tests were made with this and the regular 40 per cent. dilution in sodium chlorid solution on all complement fixation tests.

In no case has the result of the Wassermann reaction varied as between the two complement solutions (unless perhaps a tendency of the acetate complement to give clearer cut reactions), and the unit of complement of both solutions was always the same. Guinea-pig serum thus diluted to 40 per cent., with 10 per cent. sodium acetate in 0.9 per cent. sodium chlorid solution, whose unit was found to be exactly 0.1 c.c., was placed in an ordinary refrigerator and tested from time to time for loss of strength. At the end of five days the unit remained constant at 0.1 c.c., at ten days the unit is 0.11 c.c., and there was no bacterial clouding. This slight loss in ten days is so small as to be insignificant as compared to the practicability of saving over *fresh* complement for a week or more, the procedure is so simple, and the reactions from this preserved complement so clear cut, that I believe a preliminary report should be made at this time, so that other workers may try it out and have the benefit of its use, is satisfactory to them, especially during the hot season, when complement deteriorates rapidly. Further investigation will show what strength solution is most efficient. This diluent works equally well with alcoholic extract or with cholesterin antigen. This 10 per cent. solution of sodium acetate in 0.9 per cent. sodium chlorid solution has the same hydrogen ion concentration as the blood (H_{P}^{+} 7.6). Collaboration is invited.

SUPPLEMENTARY

In preparing the acetate diluent it is well to sterilize the solution to prevent the growth of fungi.

Solutions stronger than 20 per cent. form a crystalline precipitate which tends to retard hemolysis. On sedimentation the supernatant fluid contains the active complement.

Strong acetate complement dilutions keep better than weak dilutions, but lose the complementary power suddenly, in two or three weeks, without germ growth.

Weak dilutions (less than 5 per cent.) work well but are spoiled in about a week by germ growth.

Acetate solutions of from 8 to 15 per cent. are best for regular use, the 10 per cent. solution from present experience being probably best.

As examples of the efficiency of this complement preservative: A guinea-pig serum taken July 19, 1917, diluted to 40 per cent. with 10 per cent. acetate solution, showed a unit of 0.1 (titration included normal serums and antigen in regular test). August 21, the unit showed 0.125.

August 16, a 15 per cent. acetate complement showing a unit of 0.1 (made the same way) was placed in a west sunlit window at room temperature (74 F.). August 27, the unit was 0.15.

Experiments have been undertaken as to the value of this acetate complement dried on paper.

CONCLUSION

Complement diluted with 10 per cent. sodium acetate will keep perfectly until used up in routine work, and will work perfectly.

THE RETENTION OF DEVITALIZED TEETH WITHOUT DANGER OF FOCAL INFECTION *

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The accumulated evidence both in research work and from clinical data has established the fact that many infective lesions of vital parts of the body can be traced to focal infections at the ends of the roots of teeth. The great amount of attention that has been brought to this important subject has resulted in the usual exaggeration, not only by the laity, but by many physicians. Consequently, it is timely that it should be made very clear that all cases of endocarditis, arthritis, ulcers of the stomach, etc., are not of dental origin.

The value of the natural teeth in the maintenance of health should not be overlooked, and they should not be extracted in a wholesale manner on insufficient evidence of their being a menace to life.

It should be understood that the evidence of a roentgenogram requires corroboration, that poor roentgenograms are apt to be most common, and that a picture in which the tissues cannot be histologically studied is unreliable.

The correct reading of such a picture for the purpose of making such a diagnosis is dependent on the definition and detail of root, alveolar process and lining membranes being absolutely clear. Even then it may be necessary to obtain other pictures at varying angles, and finally only a man thoroughly familiar with the histologic appearance of these tissues is capable of a fair interpretation of the same. Even when a roentgenogram has demonstrated the presence of focal infection in the alveolus, it does not prove it to be the etiologic factor sought for. On the other hand, it may be a contributory cause together with some other focal infection.

Too little attention in this period of quick action is being given to the making of a differential diagnosis. In this respect the value of the *Streptococcus viridans* complement fixation test is worthy of serious attention. In view of the fact that more than 150 strains of this group have so far been isolated, we must bear in mind that if it has a value, a negative result is by no means conclusive that a later test with some new strain may not show a positive fixation. I am firmly convinced from corroborating clinical evidence that the test has a certain diagnostic value. When a positive result is obtained there remains the self-evident fact of the value of an autogenous vaccine from this source.

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* Read before the Section on Stomatology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

Whenever a diagnosis of a focal infection at the end of a root has been made we must give due consideration to the question of immunity. The transitory character of immunity must never be forgotten, just as we must remember how much we still have to learn about immunology. Consequently, it follows naturally from this that given a focal infection in the alveolar region, it must as a question of prophylaxis, be cured or the tooth should be extracted.

Where corroborative evidence points to this pathologic site being the cause of metastatic disturbances of a serious nature, it should prompt the cure of the infection as rapidly as possible. In such cases immediate extraction of the diseased tooth is frequently made necessary on account of the time required to eradicate such an infection and leave the tooth in a condition free from the danger of reinfection.

On the contrary, where no metastasis is discovered it leaves the dentist ample time to attempt to properly preserve such a diseased tooth.

Perhaps the greatest reason why this operation is done so imperfectly, even at the present time, by very capable men, is on account of the fact that in the majority of cases it is one of the most difficult of operations and often requires many hours of patient labor divided into different periods of time. This is due to the fact that in so many cases calcification has blocked the root canals, and it makes no difference how extensive this calcification has become, it is essential that every canal must be explored until a broach can pass through the foramen. This can only be accomplished by Roentgen-ray checking at every stage of the operation. It is most difficult to have the average operator understand that certain definite results must be attained regardless of time consumed.

I have been frequently criticized for the length of time I have taken in certain cases, but would state here that perhaps these men, many of them thoroughly conscientious, would think further if they could see some of their failures that had been rectified, failures that were due entirely to their unwillingness to take the time necessary to explore canals to their end. The great expense, necessitated by the amount of time consumed, prohibits the operation in a great many cases. Too many men are easing their conscience by doing better work than formerly, and yet not obtaining correct results. This, however, should not suffice any longer, the principles are now understood, the Roentgen ray reveals the result, and if we make any pretense to honesty we must cease allowing imperfect root canal work to remain in the mouths of people who leave the dentist deluded into thinking that the disease has been eradicated. Remember, after all has been said, that our first duty is not to ourselves, not to our colleagues, but to the community at large.

With this understanding let us consider the principles, technic and final result to be attained.

The first thing to remember is that every step and stage of our work must be done under the most thorough aseptic surroundings. The mouth should be thoroughly sprayed at the outset of every sitting. The gingival border of the root to be operated on should be painted with iodin and the rubber dam should invariably be applied.

It is not feasible here to elaborate the varying details of removing pulp tissue from roots that deviate from the normal type and that exhibit different pathologic characteristics. Let it suffice at this time to say that every particle of organic pulp tissue must be removed, however intricate and tortuous the canals may be, all bay-like recesses and divergent canals must be cleared of organic matter. Unless this can be accomplished it is useless to proceed further.

When it is desired to make a complement fixation test, the utmost care in the way of asepsis should be taken in regard to the removal of pulp tissue. No chemicals of any kind can be employed on account of the danger of destroying any existing bacteria. When the roentgenogram shows that a sterile broach can be passed through the foramen, a fine iridoplatinum wire previously heated is passed through the foramen and turned around a number of times in the periapical region. This is now withdrawn with care so that the inoculated wire should come in contact with nothing prior to passing into an agar-agar tube, or better still, in a sterile broth tube. The carefulness of our technic alone will determine the value of the culture produced.

The therapeutic agents used to remove pulp tissue are the sodium and potassium alloy and dilute sulphuric acid. No therapeutic agent should be used in the canal which will affect any pathologic condition, which might otherwise interfere with a correct diagnosis. This especially precludes the use of all preservatives such as creosote or the phenols, which will in addition prevent an ideal hermetical sealing of the canals at a later stage.

The galvanic current is now brought into use for the purpose of zinc ionization. Without going into the details of ionic therapeusis, it can safely be said that all of the infected area can be made sterile in this way. It is all dependent on the amount of ionization used. Where there is any uncertainty as to periapical sterility, it should be determined by taking a culture from this area which should show absolute sterility. This necessarily means a delay of at least ten days when, if no culture has shown, the part should be again sterilized prior to sealing the canal. So far no investigation has shown how long such an area will remain sterile. Until this has been definitely solved, it is important that the root canal sealing should immediately follow the last ionization of a given part. In multi-rooted teeth the ionization should be carried on through each separate canal which should immediately be filled before another one has been ionized.

Every step having been so far satisfactorily carried out, we reach the final and most important stage of the operation, that of the root canal filling. This material should be nonirritating, unchangeable in character, and should so homogeneously and hermetically seal the interior of the canal as to safeguard against any infection through the tubuli from the cementum. Its most important function, however, is to seal the outside of the end of the root against two important factors. The first one is to defend the slightest opening of a foramen against the invasion of bacteria. The second, and equally important factor, is to hermetically seal any exposed surface of cementum or dentin against osteoclastic invasion.

The encapsulation of the end of the root with gutta-percha accomplishes both of these purposes. No stage of the operation requires so ideal a maintenance of asepsis.

The proof that such an operation as above described will eradicate the disease, consists in the fact that this granuloma area disappears and is replaced by new alveolar structure.

Anything that interferes with the success of these steps is liable to make the operation a failure.

The most common cause of failure among the men skilful in this operation is an imperfect encapsulation, which oftentimes cannot be detected until it is discovered that the new bone has not regenerated

It does happen that regeneration of bone proceeds for a given time, perhaps for a year, and then on account of imperfect encapsulation, a new infection has started up, showing by evidence of new rarefication, or absorption of the root starts in at some point because there has been an exposed point of cementum not sealed by gutta-percha

On this account it is both unwise and not safe to be positive of success until the part has been under roentgenographic observation for a couple of years Patients should be instructed to come back for these pictures at least every six months until assured that the new bone is a permanent addition

If it is found impossible to effect the permanent regeneration of new bone in this way there still remains a final operation by means of which the root may be maintained in a healthy manner

The amputation of the diseased end of the root and thorough curettement of the periapical region has become a well-recognized procedure, but should be a measure of last resort

Many apicoectomies brilliantly done eventually turn out failures, because of root absorption due to the action of iconoclasts on the exposed cementum or dentin on the stump of the root

This should be obviated by permanently insulating this dentin surface from the body tissues This has been done in the past by an amalgam filling over the stump which entirely covers it An easier method and one more compatible to human tissue is to dry the surface of the stump and cover it with a few coats of a chloroform solution of gutta-percha The rapid volatilization of the chloroform produces a dehydration of the surface and the gutta-percha is left firmly glued to the end of the root

Of course the same follow-up roentgenograms must be taken after this operation When none of these methods produce permanent alveolar regeneration it becomes our duty to see that the tooth in question is extracted

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ABSTRACT OF DISCUSSION

Dr. M I Schamberg, New York It is evident that an immense amount of work is being done to clarify the atmosphere as far as focal infections are concerned I fear that too little attention has been given to the areas of infection that occur in the mouth that do not show in roentgenograms, in other words, where teeth are pulpless and show no evidence of infection at the end until they are removed and the tips of the roots snipped off and cultured The same thing applies to the cases of incipient gingivitis which have not really reached the stage of having become definite cases of pyorrhea, cases in which there is no pus discharge, but in which there is, however, a breeding space for the lodgment of organisms that are a menace to the health The mouth is definitely the slum district of the body, and in that mouth we have all the criminal organizations that tend to invade the system, and produce the havoc that we have heard so much about In spite of excellent work done by Dr Rhein and his followers, I am inclined to favor only a more definite method of curing apical infections—that the vast majority of practitioners be not permitted to deal with pulpless teeth I believe that at least 75 per cent are failures in spite of all that we have learned, and these conditions are a great menace to the health where they are directly or indirectly responsible for the numerous secondary involvements

Dr T W Brophy, Chicago The most essential step to be taken in the prevention of these diseases is the training of parents as to hygienic methods When the time arrives, Dr Atkinson used to say, that the members of the profession and the public are brought to realize the serious consequence of dental caries, and its sequelae, then we will have arrived at a time when these diseases will be less numerous I was further impressed with the feeling that the class of infections that have been discussed constitute a class of infections and diseases that has not received the attention that its importance demands on the part of medical teachers One of the greatest difficulties with which I have had to contend is to find that interns, who are among the best educated of the medical graduates, have never had instruction, with few exceptions, on the diseases incident to the teeth, when they come in touch with these maladies they are not qualified to make a diagnosis or to express an intelligent opinion as to the best course to pursue in the management of their patients

Dr. Louis Goldstine, New York I have been dealing with chronic conditions in cases that have gone a little too far for the dental man to do much good I have examined hundreds of roentgenograms in trying to see the percentage of infections in these chronic cases relative to the cases of healthy persons, and I find that in the 200 or 300 cases that I have gone over, about 95 per cent of the arthritis patients have two or three abscesses in their mouths, and I think we will find this in cardiacs as well Of course in these cases little can be done by clearing up the abscesses to cure the conditions, as the arthritic conditions are beyond redemption.

Dr Frederick B Moorehead, Chicago There are certain fundamental facts that we must all face in this whole question First, the fact of focal infections as an established truth in pathology, second, the incidence of chronic mouth infections, in relation to general infections, third, we must all agree that any infection, wherever found, should be removed These are postulates which we must accept as a working basis Now, the question arises, how shall this be done? For the most part by the extraction of teeth

Dr Rhein has indicated the possibility in the hands of an expert of saving a few teeth He failed to tell us how many times he fails to do the thing he showed us on the screen this morning I know he has a good percentage of failures, and he removes the teeth when treatment fails An expert giving a lot of time in saving a few teeth does not determine an average for the profession I am perfectly willing to admit that where teeth can be handled by a man as expert as Dr Rhein, badly infected teeth may be saved in many cases A specialist has many advantages over the general practitioner, both in opportunity and the class of patients who come to him Where the patient's health is not put in jeopardy, while infected teeth are being treated, and where the case is carefully checked up by the Roentgen ray, no one has any complaint to make, one may develop a highly specialized technic in root canal management if he is willing to give thought and attention to it, but how many have developed such skill? Not many! How many people are there who may be served by that type of men? What about the great population of foreigners? What about the poor? What about the people who are bedridden in our hospitals, what about people suffering from general chronic infections? Are we going to subject them to any detailed regime? Certainly not Reduced to fundamental facts, it becomes evident, after all, that, for the most part, teeth that are badly involved in chronic infections will have to be extracted

Dr Arthur Zentler, New York After what we have seen, what right have we to believe that in spite of good technic we will have no infection around the apex of these roots?

Dr Meyer L Rhein, New York I am in thorough sympathy with what Dr Moorehead has so well said in a general way, except that I think he goes a little to extremes I think he overestimates the lack of men who are doing good root-canal work at present I know that personally I have trained and educated over 200 men in this very district that we reside in, who are doing first class root-canal work There is a great deal that he has said, however, that it is not thought advisable to debate on I would especially refer to the difference the unwillingness of a man, after he has spent two hours or twenty hours on a good tooth—and that has happened many times with me—then to tell the patient that the operation is a failure and that the tooth must be removed. That is the difficult point to make the dentist understand. It is a simple thing with the surgeon and his confrere the physician. Dentists have been brought up to look at these things as jobs, mechanical jobs, and they are afraid to tell their patients that the operation is a failure and that in the interest of their health the tooth must be removed. That is the point I want to emphasize in regard to what Dr. Moorehead has said.

I was disappointed not to hear from Dr. Goldstine on remedial efforts by means of extraction in some of these cases. This is a criticism against the institution with which he is connected. I have discussed that question with the managers of institutions many times, and found it difficult to resort to extraction because they had no money at their disposal to supply patients afterwards with artificial teeth. I have a long history of arthritis cases of many years' standing, many of them as bad as Dr. Goldstine will find in his institution, in which the patients have been absolutely cured by the removal of every focal infection in their mouths. This is no criticism of the gentleman, I am simply making it broadly against the lack of means that these institutions have for the completion of such an effort.

Dr. Kurt H. Thoma, Boston: I am connected with an institution which deals with chronic infectious cases, and most of the patients suffer from chronic arthritis of long standing. Our hospital is in a position to give these patients the very best attention in all respects.

From the beginning I have practiced radical extraction of all abscessed teeth and in order to restore the patient's masticating efficiency, which is of course, of great importance, we have a dental intern who supplies plate and bridge work after the extractions.

The dental department of the hospital has existed for about two years and in looking back on the many cases under our observation we find that we did not get the results which we first expected. We thought we would cure a large percentage of the patients and although we have not done this we find improvement in many cases. The acute symptoms of pain and swelling have improved but they have not been entirely corrected. This is due to the fact that the destruction in the joint, or other part where the infection is located has progressed to such an extent that anatomic restoration is impossible. However, we do look for improvement of a more physiologic nature. The purpose of correcting abscessed teeth infected tonsils and intestinal disorders is to improve the patient's general condition and from this and improved nutrition, in which masticating efficiency plays an important part, we expect improvement of the chronic disease. We find that we are able to put the patient in a condition which, though not ideal enables him to do some kind of work to a limited extent, thus making a self-supporter out of a man who would otherwise be a burden to the community.

Dr. T. W. Brophy, Chicago: Dr. Thoma, in removing the teeth about the ends of the roots of which you have an abscess what do you accomplish by that?

Dr. Thoma: After I remove the tooth I get rid of the infection.

Dr. Brophy: Well the bone is affected, is it not?

Dr. Thoma: Of course by removal of teeth I *mean not* only extraction of the tooth but all that goes with it, the curetting of the cavity, and the treatment of the wound until it is thoroughly healed.

Dr. Brophy: Curetting of the cavity ought to be brought out.

Dr. Thoma: I both extract the tooth and curet the cavity in every case.

Centralization of Medical Work.—Specialization has not tended to decentralize, but rather has been one of the most powerful incentives for centralization in medical work.—J. E. Tuckerman, M.D., *Journal of Sociologic Medicine*.

THE ROENTGEN-RAY TREATMENT OF ACNE VULGARIS

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The etiology of acne vulgaris is now firmly established. The disease is conceded to be due to the acne bacillus, although it is generally believed that the staphylococcus is responsible for the secondary suppuration. There can be no doubt that the first named organism grows much better in an oily medium, both in vivo and in vitro.

Clinically, acne occurs almost exclusively in those persons who have oily skins, and in whom there is evidence of overactive sebaceous glands. For years, it has been realized and taught that any treatment that would free the skin from this grease furnishes the best means of combating the disease. It is now well known that the Roentgen rays will cause a permanent atrophy of glandular structure, hence their use in acne is theoretically justified. From a practical standpoint, many dermatologists have reported good results from such treatments, but up to the present time, no report has appeared in the literature of the treatment of a series of cases by the single dose method. For two years I have been using this method, and the excellent clinical results seem worthy of being placed on record.

METHOD OF TREATMENT

The technic employed is that which MacKee has advised in a series of articles. An interrupterless transformer, capable of backing up a 10 inch spark gap, and a Coolidge tube have been used in all cases in this series. At first, each dose was measured with a Holzknecht radiometer, but as experience increased, it was found that with a carefully standardized technic this was unnecessary, and that one could depend on the so-called indirect method in the vast majority of cases. In all cases the attempt was made to give just under an erythema dose, since a dose less than this was not so promptly effective, and as even one erythema dose might eventually cause telangiectases. As measured by the Holzknecht radiometer, the proper dose was three units, with the pastille at skin distance. This reading was made on the full distance scale of the instrument, not on the separate and distinct half distance scale, on which the reading would have been only one-fourth so great. In terms of the indirect measurement, the technic was as follows: The focal skin distance was nine inches, a spark gap of 7¾ inches, and a milliamperemeter reading of 4 with no filtration was invariably employed. The time was forty-five seconds. With the same technic, it requires one minute and ten seconds to produce complete epilation of the scalp.

In regard to filtration, various experiments have been made, both with aluminum and with chamois filters, but at the present time, there seems to be no advantage in their use, although theoretically it should be possible to atrophy the glands with less danger of injuring the skin when they are employed.

Respecting the number of treatments and the interval between each, the standard has been to give one treatment every three weeks. However, it is a question whether or not the use of a little over a third of the dose described above given once a week would not be better, and this method is now being tried. There are several reasons for this change The single dose method is very close to the margin of safety, and, if the patient used an irritating preparation, an erythema might result, the second reason is that the patient can be watched more closely

In no case has sole dependence been placed on the Roentgen rays in all the cases the digestion has been watched, constipation corrected, and the ingestion of an excess of carbohydrates, especially chocolate, forbidden Locally, the comedones have been thoroughly removed No other treatment has been given, either local or general, with the exception of the free use of soap and water, and the rubbing in of a small amount of very weak sulphur ointment, when the skin became excessively dry from the roentgen therapy

RESULTS OF TREATMENT

In the treatment of thirty-four cases, in which at least two exposures were given, the results were as follows Twelve patients were completely cured so that not a trace of the disease remained three months after the last treatment, fifteen patients were so greatly improved that they would not have more than two or three pustules in the course of a month, four patients showed marked improvement, but the disease would relapse from time to time, apparently because of indigestion or indiscretions in diet, and the remaining three patients were but slightly benefited In two of these cases, a sufficient chance was not given to show what the Roentgen rays really would accomplish, while the other was a remarkably resistant case, in which the patient would show considerable improvement only again to relapse as soon as treatment was discontinued The average number of exposures given in the cured and greatly improved cases was three and one third

From the standpoint of sex, there was practically no difference in the results obtained Both men and women responded equally well Likewise there was no difference in respect to the age of the patient, or even the duration of the disease Twenty-four of the cases were of the ordinary papulopustular type, of these, eleven patients were cured, eleven patients were greatly improved, and two patients markedly improved Of the seven cases of acne indurata, one patient was cured, four patients were greatly improved, and two patients but slightly helped Of the three cases of acne exclusively of the back, two patients were greatly improved, and one patient but slightly aided It should be stated that in all three of these cases it was impossible to get the patients to take treatments with regularity or perseverance

NECESSITY OF CAUTION

There are several unpleasant features that may be associated with the Roentgen-ray treatment of acne *If the hair of the scalp and eyebrows is not carefully* protected by lead, the treatment will cause it to fall temporarily, in those cases in which there is a marked "cowlick" and a bad acne of the forehead, it is sometimes extremely difficult to secure complete protection The eyebrows and lashes are very easy to protect, but when pustules exist in the eyebrows, they will continue to form even when the remainder of the face is well If one uses a considerable amount of filtration and a consequent large dose of the rays, a temporary swelling of the parotid glands may occur, but, with the standard technic described in the foregoing, this has never happened The employment of the rays will frequently cause the appearance of numerous freckles In many patients, considerable temporary tanning results, and this may be disfiguring since the protecting lead foil will keep some parts of the face white It is not at all unusual for a dose which is too small to cause a temporary exacerbation of both the grease and the eruption Any size dose will not infrequently cause the appearance of a large crop of small, very superficial pustules, that greatly annoy the

REVIEW OF THIRTY FOUR CASES OF ACNE SHOWING THE RESULTS OF TREATMENT BY THE ROENTGEN RAY AS COMPARED WITH THE USUAL DERMATOLOGIC TREATMENT

Case No and Sex*	Age	Duration	Type	Predisposing Cause	Response to Usual Treatment	No of Exposures	Result
1—♀	22	10 years	Papulosa	None	Slight	2	Great improvement
2—♀	20	3 years	Papulosa	None	None	3	Great improvement
3—♂	17	3 months	Papulosa	None		4	Great improvement
4—♀	23	3 years	Papulosa	Overwork	Fair	4	Cure
5—♀	21	3 years	Papulosa	Constipation	Fair	3	Cure
6—♂	36	10 years	Back	None	Fair	3	Great improvement
7—♂	24	3 years	Papulosa	Constipation	Fair	1	Great improvement
8—♀	23	2 years	Papulosa	Constipation	Fair	4	Great improvement
9—♀	22	5 years	Indurata	None	None	9	Great improvement
10—♂	31	10 years	Papulosa	None		2	Great improvement
11—♂	20	5 years	Indurata	Constipation	None	4	Cure
12—♂	21	3 years	Papulosa	None	Slight	3	Cure
13—♀	22	4 years	Indurata	Overwork	Slight	7	Improvement
14—♀	22	6 years	Papulosa	None	None	3	Cure
15—♀	23	6 years	Papulosa	None		3	Great improvement
16—♀	26	3 years	Papulosa	None	Slight	3	Cure
17—♀	26	3 years	Papulosa	None		3	Great improvement
18—♂	26	5 years	Papulosa	Constipation	Slight	3	Great improvement
19—♀	28	10 years	Papulosa	Constipation	Slight	3	Cure
20—♀	17	1 year	Papulosa	None	None	3	Cure
21—[illegible]	18	4 years	Indurata	Constipation	None	2	Slight improvement
22—♂	21	5 years	Indurata	Constipation		5	Marked improvement
23—♂	20	3 years	Indurata	Constipation	Fair	2	Marked improvement
24—♀	22	6 years	Papulosa	Constipation	Fair	4	Cure
25—♀	22	4 years	Papulosa	None	Fair	1	Marked improvement
26—♀	16	1 year	Papulosa	None		3	Cure
27—♂	26	5 years	Back	None	None	2	Slight improvement
28—♀	22	4 years	Papulosa	None	None	4	Marked improvement
29—♂	22	5 years	Papulosa	None	None	3	Cure
30—♀	27	6 years	Papulosa	None	Fair	6	Great improvement
31—[illegible]	21	5 years	Indurata	None	None	5	Great improvement
32—♀	25	8 years	Papulosa	Constipation		4	Great improvement
33—♀	25	7 years	Papulosa	None	Fair	2	Cure
34—♀	34	4 years	Back	None	Fair	2	Great improvement

* In this column, ♂ denotes male and ♀ female

patient The most serious danger is that of permanently damaging the skin as the result of an overdose This may take the form of atrophy with wrinkling, or of telangiectasia associated with atrophy In one of my cases, a piece of protecting lead slipped so that one area of skin received a double dose, the result was atrophy with wrinkling over a small area In another case of very severe indurated acne, in which the scarring was already severe and, in fact, was threatening to become appallingly disfiguring, several erythema doses were intentionally given, as smaller doses had no result Fortunately, only several slight telangiectases resulted, and these at the depths of already existing pits

CONCLUSIONS

The use of the Roentgen rays in acne is justified as a routine procedure by those who are absolutely certain of their Roentgen-ray technic, and by no others, since much damage can easily be done by an inexperienced operator The proper use of the rays affords much the quickest and surest way of controlling the disease.

COINCIDENT PREGNANCY AND TABES DORSALIS *

EDGAR M ALLEN B A, M D
LOS ANGELES

Pregnancy rarely occurs in the tabetic for several reasons (1) because tabes occurs about ten times more frequently in men than women, (2) because decrease in sexual desire and power may be an early symptom of tabes, and (3) because a majority of the cases occur between the thirtieth and fortieth years of life, when the frequency of pregnancy is waning Classic texts on obstetrics scarcely refer to the coincidence of tabes with pregnancy and labor Grenier de Cardenal[1] in 1902 found only fifteen cases in the literature, and Jacub[2] says that only eight cases occur in the German literature up to that date No one has reported any series of cases, for obvious reasons

Fruhinsholz and Remy report a case in which the diagnosis of tabes had not been made before the occurrence of labor The woman was a quadripara, aged 36 During pregnancy she had gastric crises which were considered as due to the pregnancy She had no eye symptoms, and in fact no symptoms of tabes that could be noted by other than a careful neurologic examination When labor occurred she had no pain with the contractions, and when examined, it was found that dilatation was already complete Delivery was normal and painless, while previous labors had been very painful These facts led to a neurologic examination which resulted in the diagnosis of tabes Fruhinsholz and Remy note that cases have been observed of false labor in tabetics in which there were crises similar to gastric crises, which affected the uterus, and caused the patient to believe she was about to undergo labor

Camp recently reported a case of tuberculous meningitis and tabes dorsalis in a woman eight months pregnant The woman was aged 29, and died from lobar pneumonia a week after entering the hospital The necropsy showed chronic meningitis of brain and cord and tabetic degeneration of the posterior columns of the cord The spinal fluid gave a positive Wassermann reaction

Jacub[2] reports a case of an octipara, aged 36, who came to his clinic with tabes dorsalis in full evolution She felt no pains except at the moment of the passage of the head The after-course was normal

Routh[3] says

> In pregnant women affected with paraplegia from injury or disease in the dorsal region of the cord labor may commence at the normal term of gestation and progress in an approximately normal manner without sensation of pain Involution and lactation are also normal

Webster[4] says

> In cases of paralysis due to brain and spinal cord lesions, pregnancy is not usually interfered with if the woman lives When the lesion is higher than the lower lumbar region, labor may go on satisfactorily even though the abdominal muscles may be paralyzed

From the foregoing brief digest of a meager literature, it is apparent that such cases as the one which I have recently observed through the courtesy of Dr Lyle McNeile in his service at the Los Angeles County Hospital are deserving of more than passing notice, and I therefore will endeavor briefly to set forth what seem to me the most important facts in connection with it I feel that there is nothing really new about this case, except possibly the advantageous use of pituitary solution in the indolent labor which occurred This stimulant has, to be sure, not been available many years

REPORT OF CASE

The patient, aged 37, has one child, born July 3, 1914, and the one born March 9 1917 She was married Sept. 26, 1913 Since the first child she has had two miscarriages at approximately three months each These were spontaneous, and did not follow a fall or other traumatism They were absolutely painless With the first labor, the bag of waters ruptured at 3 or 4 p m, of July 2, and the patient had no pain until 8 a. m of July 3 Then she had a slight pain about every five minutes until 12 noon, when her physician applied forceps and used chloroform as an anesthetic The patient says that he did not remark that she was having any unusually small amount of pain The baby soon after birth had a rash and would not nurse well, but no treatment for the rash was instituted by the physician whose attention was called to it. The rash soon disappeared The child has had average health to date. The patient entered the Los Angeles County Hospital, Jan 14, 1917, because of a seven months' pregnancy, and complained of difficulty in walking for the last three months She also complained of difficulty in descending stairs and in balancing herself while standing erect, especially in the dark. She further complained of shooting pains in the legs and thighs rather frequently for two years previous to her admission to the hospital These were diagnosed as rheumatism by her attending physician, but were knifelike in severity and were apparently increased by sitting outdoors too long on cool evenings, and by hot baths She also complained of slight pain in her left chest in the subscapular region, which was accompanied by coughing and was worse on deep breathing It was diagnosed as dry pleurisy before she entered the hospital, and largely subsided under counterirritant treatment, and immobilization

She first began to be bothered by her shooting pains about January, 1915 These have continued to date In, or close to, January 1916 when at a neighbor's she heard her baby cry, and tried to run home, but found she could not do it. She

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* Read before the Los Angeles Obstetrical Society April 10 1917

[1] Grenier de Cardenal Rapports du tabes avec la grossesse et l accouchement, These Bordeaux, 1902 1903

[2] Jacub Schwangerschaft und Geburt bei Tabes dorsalis, Zentralbl f Gynäk. 1911 35, 1273

[3] Routh Am Jour Obst 1897 36, 384

[4] Webster Textbook of Obstetrics Ed. 1 W B Saunders Co 1903, p 287

of cross-fire applications was administered at the end of three weeks and a third at the end of fifteen weeks, although there was no recurrence A fourth series will be given later

Case 6—*Postpharyngeal lymphosarcoma with metastasis to cervical lymphatics*—A man, aged 56, referred by Drs Howard Whittaker and Francis R Packard, had a large mass completely occluding the fauces and apparently springing from the pharynx back of and above the left tonsil It bulged into the mouth, but more into the posterior nares, and pushed the soft palate downward The eustachian tubes were obstructed, breathing was difficult, and only liquids could be swallowed Punctures by another physician showed no suppuration In addition, there was a large glandular swelling below and back of the angle of the jaw about the size of an egg The Wassermann test was negative The patient had lost 40 pounds in four weeks Treatment consisted of external application over the *left* side of face and neck by 110 mg of radium element, 2 mm aluminum filter, thirty-five areas, one hour each, 35 mg radium in platinum tube was implanted eighteen hours in growth in throat, and cross-firing by Roentgen rays was applied through the *right* side of the face and neck and the thorax In less than two weeks all evidences of the growth had disappeared The external radium and Roentgen applications were repeated a month later, and a third series was administered in another month At present, three and one-half months after the first treatment, the patient is apparently entirely well and has gained 41 pounds Another series of applications will be given later

Comment—This patient received as vigorous treatment as it is possible to administer There was no sloughing in the throat, and the skin reactions, while quite marked were well within the bounds of safety

Case 7—*Sarcoma of left turbinates and antrum*—A woman, aged 51, on the service of Dr Charles H Frazier, University Hospital, had large turbinates blocking the left side of the nose, with granular surface and not shrinking under cocain or epinephrin Roentgenogram showed dense clouding of the left antrum The pathologic report on section removed was sarcoma Treatment Radium element, 75 mg, in two platinum tubes was placed twenty-four hours above and below the lower turbinate About two months later, 25 mg were again inserted in two areas twenty-four hours each The antrum was now open A month later the antrum still contained sarcomatous tissue, and there were some metastatic enlargements in the neck Applications were made over these glands, over the antrum and in the antrum, for the last time Later another series over the cervical enlargements failed to affect them materially, and a block dissection was performed nearly eight months after the first admission Subsequently a postoperative series of applications was made The patient was last seen, April 1, 1917, twenty months after beginning treatment, and there has been no recurrence

Comment—Experience with this and similar cases has shown that implantation alone is not always sufficient to control such a growth that is not very definitely localized It is a wise precaution to employ radium or Roentgen-rays over the neck even when the primary growth is in such a locality as in this case

Case 8—*Carcinoma of the left auditory canal, with metastasis to cervical lymphatics*—A woman, aged 54, referred by Dr B A Randall to the service of Dr Charles H Frazier, had a sloughing red mass projecting from and entirely occluding the external auditory canal Under the ear there was a metastatic cervical enlargement the size of a walnut The pathologic report was carcinoma Treatment Radium element, 25 mg, in a platinum tube was inserted twenty-five hours into the mass in the auditory canal The cervical enlargement was treated by cross-fire radium radiation In five weeks the latter had entirely disappeared, and the canal was open The same treatment was repeated Five weeks later, Dr Randall reported too much granulation tissue in the canal, and a radium tube was again inserted for twenty-eight hours There was no recurrence in the neck When last seen, about one year after admission, the canal was clear, though there was still a little discharge, and there was no cervical enlargement

CONCLUSIONS

1 In the treatment of inoperable malignant growths originating in cavities such as the mouth, throat and ear, radium therapy is an extremely valuable adjunct for the reason that it can usually be applied directly to the growth, which is more or less inaccessible to direct Roentgen-ray exposure This alone is not sufficient, and the growth should also be attacked from every possible direction by cross-firing either by radium or by Roentgen rays or both Any nearby area in which metastasis is likely to occur should also be exposed

2 When implanted directly into sarcomatous tissue, radium usually causes little or no sloughing if the growth responds promptly

3 It is advisable to produce as rapid subsidence of the growth as possible in order to minimize the possibility of metastasis during the period of treatment

4 Our experience has seemed to prove that growths insufficiently treated at the periphery may be stimulated to more rapid proliferation at this portion

5 Sarcomatous growths, especially in the tonsillar region, are more amenable to treatment than carcinomas

6 It would be best to continue treatment for some time after the apparent complete disappearance of the growth

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THE TRUTH ABOUT RADIOACTIVE THERAPY IN MALIGNANT GROWTHS *

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AND
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Ever since the days of the ancients the medical mind has been interested in the subject of the possible cure of cancer, and each generation has had its hopes raised on high, only to see them dashed again to earth Of all the methods for cure that have been offered, the only one that has endured to the present day is that of radical surgical removal, recommended by Hippocrates, and adapted and perfected into its modern form by the persistence of the surgeon himself aided by the researches of a Vesalius, a Pasteur and a Lister And yet, after centuries of effort by the most brilliant surgical minds of succeeding generations, the results are far from perfect, and even the surgeon admits that, if further improvement is to follow, it must result from work along educational lines leading to earlier access to the patient, with all that this implies diagnostically

The surgeon has for centuries past found himself in the pleasant position of being the arbiter of the destinies of all new suggestions for cure He has weighed and balanced them with what he could accomplish himself and has always been able justly to discard the proposed method in favor of his own With the advent of the radioactive methods some twenty years ago (Roentgen ray, 1895, and radium, 1905), it was natural that enthusiastic advocates of these methods should claim more for them than they actually were able to accomplish At least, that has been the history of all new therapeutic procedures Once again the surgeon looked on in his properly critical attitude and decided that they would not do "Into the discard with them" But this time his judgment was probably a little premature, although correct from his particular angle With the exception of basal cell epitheliomas and certain growths with the morphology of sarcomas, but with a low grade of virulence, we doubt that radioactive measures per se ever cure malignant tumors, except in the most infrequent instances, and surgery is still the proper method to which we must resort

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* Read before the Section on Pharmacology and Therapeutics at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

In making this statement we have in mind patients who treated by surgery and by Roentgen rays or radium have relapsed after being symptomatically cured for ten thirteen and even seventeen years and also those occasional cases of spontaneous cures which occur in the practice of every surgeon of wide experience The surgeon's attitude of mind is induced no doubt, by having to pass judgment on so many worthless and widely advertised "cures", but still we think the orthodox surgical attitude is somewhat faulty Might it not have been better for the surgeon to say, "These things do not cure cancer consequently it is better to operate when we can But perhaps there is something to radioactive measures after all, and possibly they may prove to be the very thing I need to help me prevent recurrence after the main mass is removed, or to help ameliorate the condition of the poor afflicted individual with inoperable growth, for whom my surgical skill can do nothing"

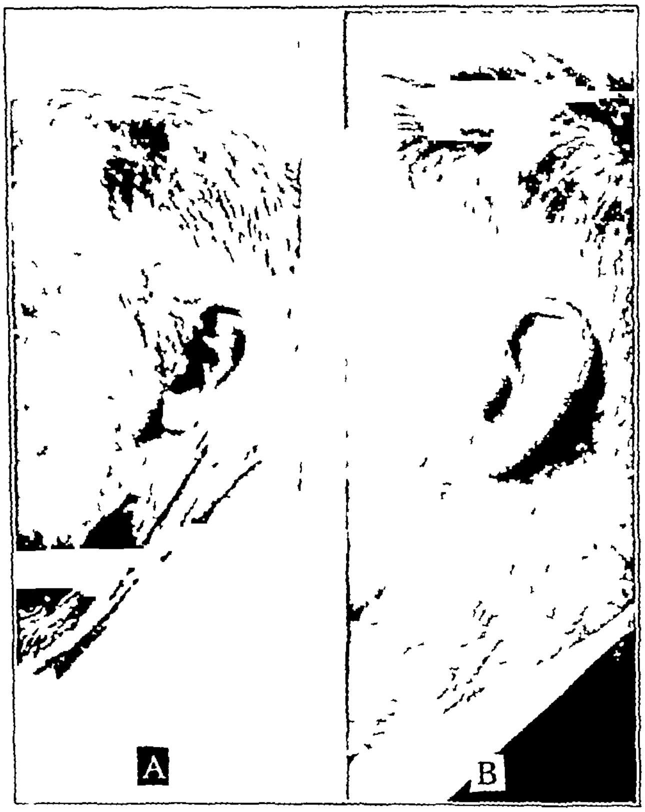

Fig 1—Basal cell epithelioma before and after treatment by Roentgen rays.

Such an attitude has been the exception, not the rule, with the result that progress has been slow Workers with the Roentgen ray and radium have by no means been exempt from criticism as regards the reports of their work On the other hand, many sincere and honest workers in this field have had their results pointed at with a finger of scorn and disbelief with the result that a spirit of antagonism has developed in the very place where it should be conspicuously absent Fortunately, in the last few years, a better spirit has prevailed Surgeon and radiotherapist stand side by side and compare results, laboratories are being equipped with proper apparatus for experimental work, an occasional hospital equips its operating room with such apparatus, and altogether a spirit of toleration and conservatism prevails which leads us to hope that whatever of truth there is will be speedily demonstrated

At the present time we know certain definite facts about the physiologic activities of radium and the Roentgen ray, and it may be stated here that as regards therapeutic activity they may be favorably compared The two main effects of their physiologic action are seen in the effects on the nucleus of the cell and on the walls of the small blood vessels

The effect on the cell nucleus is seen in preventing a consummation of the mitotic process after that process has once started There is probably no direct effect on the resting nucleus except by very large doses Furthermore, it is almost certain that if sufficient dosage is used to destroy the resting nucleus, it will also destroy the nuclei of cells of normal structures

On the endothelial lining of capillaries the effect is expressed by a swelling of the lining cells that, in the case of poorly formed new vascular channels, such as are a notable feature of all rapidly growing neoplasms, may go on to complete occlusion, with the result that large numbers of tumor cells are destroyed indirectly by the action of the rays because their source of nourishment is impaired and destroyed

We believe that all the effects of radioactivity as shown on neoplasms can be explained by these two hypotheses Certainly it is true that the most marked effects of the rays are seen in those new growths in which such conditions obtain, that is, those which show a structure composed mainly of nuclei and rich in mitotic figures and which at the same time are growing rapidly and consequently are rich in small, poorly formed vascular channels In addition it may be stated that the more nearly embryonal in type the cell is, the more easily it is influenced by the rays This is merely a restatement of what has already been said when it is realized that the cells of the ovary, testicle, thymus, lymph nodes, etc , are just those which of necessity must mature early and be rapidly reproduced in order that the functions of these organs may persist If these statements are true, it would seem a simple problem to elucidate the cause of success or failure in any given case, as well as to account for the phenomenon of failure after apparent clinical cure

Let us consider the squamous cell epithelioma, a neoplasm which because of its structure and clinical behavior, constitutes a most unsuitable type for radiotherapy, composed as it is of relatively few cells, densely packed together, with a cell body composed mainly of keratin, with few mitotes and nourished by well formed vascular channels We can state that we have never seen either radium or the Roentgen ray affect these growths unless the dosage was pushed to such a point that to the physiologic action of the ray was added the action of a caustic Compare this type with the basal celled epitheliomas, which are rich in nuclear figures, rapidly growing at the periphery and consequently poorly nourished by immature vascular channels Here the effect is striking with no more dosage than is necessary to produce a physiologic effect

Compare also the adenocarcinoma or medullary carcinoma of the breast with the true scirrhus type I hardly think any one will dispute the superior primary results in the former type

Consider the response of the papillary adenocarcinoma of the ovary, the carcinoma of teratoid origin of the testicle, in fact, any tumor composed of cells of the embryonal type

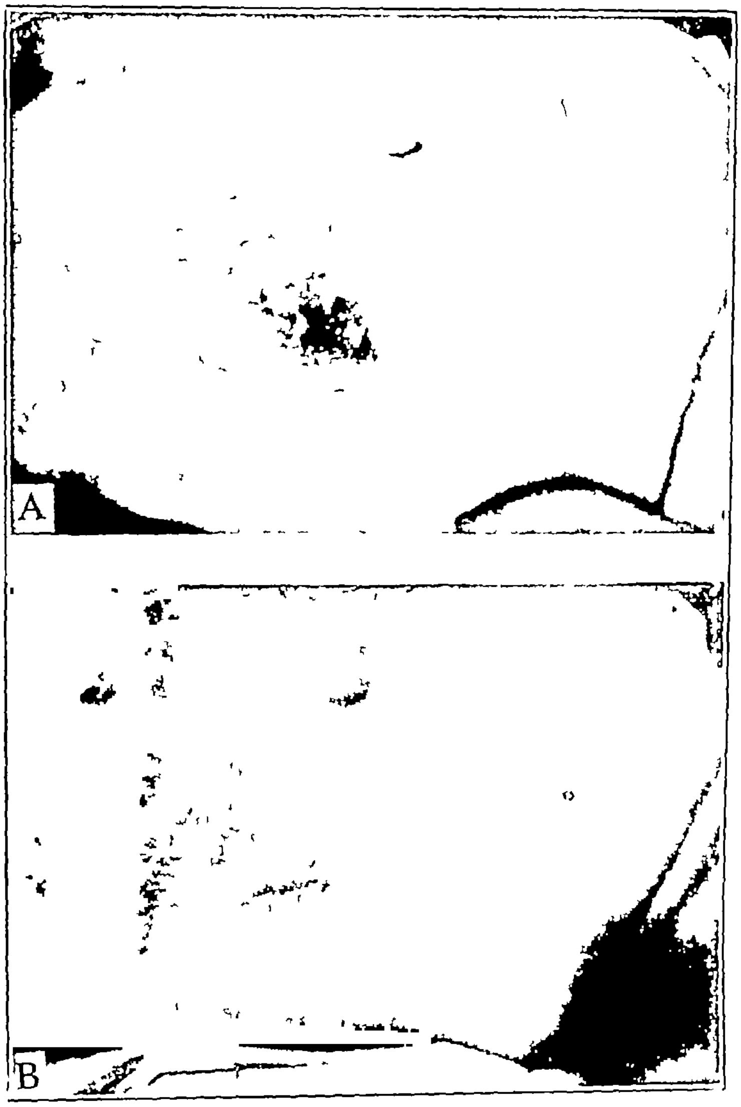

Fig 2—Squamous cell epithelioma of abdominal wall before and after treatment by coagulation and Roentgen rays

Then consider the sarcomas First, let us take the sarcomas of connective tissue origin, such as the spindle and round cell sarcomas of fascia and bone Here we see this to be true also, for the more nearly the growth approaches the pure fibroma in type the less response is seen to the ray Then compare these results to those seen in sarcoma of lymphoid type in which the above mentioned conditions obtain (predominance of nuclei, vast numbers of mitotic processes, very numerous poorly formed blood vessels) Surely the primary results are hardly comparable

Again, why is it that it is always easier to reduce a metastasis than the primary growth itself, unless it is true that these cells, because of their recent advent in a given locality, have not had sufficient time to establish vascular relations with the stroma and consequently such vessels as do exist are apt to be rudimentary in structure and thus easily obliterated? If small metastases are treated with heavy doses and then removed, such cells as do persist in a viable condition, as shown by their subsequent reactions, are always found in close proximity to the vessels which have persisted, because their structure or size or both was such that obliteration could not be achieved

Assuming that the foregoing hypotheses are true, and we believe them to be so, what conclusions may we safely draw from them and what postulates may we lay down to govern our conduct as radiotherapists? We offer the following as a summary of our beliefs regarding the application of radiotherapy in malignant growths

1 All operable tumors, basal cell epitheliomas excepted, should be treated surgically at the earliest possible moment, but all such cases should receive the benefit of preoperative and postoperative raying with radium or the Roentgen ray or both Furthermore, no case of operable tumor has had the benefit of all that can be done unless such procedure is followed, and the surgical statistics will materially improve if this be done

2 All instances of inoperable tumors, of whatever nature, should be given the benefit of radiotherapy For, while in the present state of our knowledge we cannot hold out any great promise of cure, we certainly can do more with this method to relieve these poor sufferers from pain, fetid odor, discharge, etc, than in any other way, and we can prolong life over a period varying from months to years

3 We feel urged to suggest to hospital authorities in general, and medical boards in particular, a more enlightened attitude toward radiotherapy Radium is expensive, we know, but the Roentgen ray, compared to the good it does, is a very inexpensive therapeutic measure

4 We desire to urge that the many laboratories devoted to cancer research be equipped with men and apparatus in order that the many still unsolved problems of radiotherapy may be solved, as well as possible advances made in therapeutic technic

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New Food Grains—Looking forward to the time when increased food supplies for the population will be really necessary, investigations have been carried on in many quarters to discover products which may be available but which ha e not hitherto been used to any extent for human food In the Oklahoma Agricultural College such investigations have been carried on looking to the adaptation of grains raised in that state and in the southwest which have heretofore been used almost exclusively as stock food Among these grains are kaffir corn, millet, milo, feterita and the various sorghums, in addition to cottonseed, which has been available heretofore in the form of the oil, and which has been used to a certain extent in the culinary arts Cottonseed meal is said to contain 51 per cent of protein, a vastly larger percentage than meat, and when mixed with kaffir corn meal and other meals is said to make a palatable and highly nutritious bread The other grains mentioned, by mixing, it is said may be used for bread making with success When it is considered that the state of Oklahoma alone in one year produced 30,000,000 bushels of grain sorghums and the other grains which can be converted into flour for bread making, the importance of this addition to the wheat supply will be seen, especially when supplementing the immense crops of Indian corn always raised in this country

THE POSSIBILITIES AND LIMITATIONS OF ROENTGEN THERAPY IN MALIGNANT DISEASE*

GEORGE E PFAHLER, M D

PHILADELPHIA

Roentgen therapy has passed through many changes in its development Generally speaking, a period of discouragement has followed one of enthusiasm, but enough truth and real value has always remained, and has been demonstrated withal, to produce today the greatest period of enthusiasm that has yet occurred During this wave of enthusiasm that is passing over the entire country, and that previous to the war had just begun in the countries of Europe, it is well for us to stop and take account of the possibilities and limitations of the Roentgen rays in the treatment of malignant disease A statistical review would be of little value and would be most difficult to obtain

It would be of little value, first because since the beginning of the use of the Roentgen rays in the treatment of malignant disease, the technic has passed through a number of stages and it would be totally unfair to compare the results that were produced early in the work with those that can be produced today Likewise, the technic and skill of individual operators have been so varied that a comparison of results would be almost worthless Therefore, in outlining the possibilities and limitations of Roentgen therapy in malignant disease, I would have it understood that I am only expressing my own opinion based not only on a rather large personal experience, but also on the reading and observation of the very excellent work done by others both in this country and in Europe

SUPERFICIAL EPITHELIOMAS

The possibility of curing superficial epitheliomas depends today on (1) the type of epithelioma, (2) its location, and (3) its extent

The Type—(*a*) Basal Cell Epithelioma Fortunately in the larger proportion of the patients that report to us for treatment the lesions are of this type, and if they are treated early, while they are still superficial and before they have invaded the cartilage or mucous membrane, they can practically all be cured

Pusey[1] says

> With an experience now of hundreds of epitheliomata treated with x-rays, I can still say that I have seen practically no cases in which the epitheliomatous tissue in the skin could not be made to disappear with the x-rays

When I make the statement that practically all can be cured I know it will sound ridiculous to men who have seen patients that were not cured under Roentgen ray treatments I, too, have seen a considerable number that did not recover under Roentgen-ray treatment, and yet when properly treated, even though the disease had existed for a considerable time, they did get well

While I say that practically all of these patients do get well, I do not believe that it is wise to depend on the Roentgen rays alone for the best results, because it is often tedious, time consuming, and expensive, therefore, in practically all cases at present, it is my practice to first destroy these epitheliomas completely so far as one can tell macroscopically, by means of electrocoagulation, curet the destroyed tissue away, and then follow with a full dose of deep Roentgen therapy One or two subsequent doses of deep Roentgen therapy will usually be sufficient to bring about a permanent cure, and by this process, I believe that all patients can be cured The electrocoagulation is a painful procedure unless either local or general anesthesia is employed In nearly all instances one can do the work under local anesthesia The pain will vary with the extent of the disease

(*b*) Squamous Cell Epithelioma It is generally recognized that squamous cell epithelioma is more difficult to cure, no matter what the method used It is of a distinctly more malignant type A squamous cell epithelioma develops more rapidly, recurs more frequently and persistently, and gives rise more rapidly to metastasis

The Location—The location of epitheliomas as influencing the possibilities of treatment by Roentgen therapy is intimately connected with the type of epitheliomas, for basal cell epitheliomas are very much more frequent in certain places and squamous cell epitheliomas more frequent in others

In nearly all instances the epitheliomas involving the cutaneous surface of the nose, the face, the cheeks and the forehead are of the basal cell type, and the patients recover under treatment by the various methods, none of which, I believe, are quite so satisfactory as the Roentgen rays or the Roentgen-ray treatment combined with electrocoagulation

The squamous cell epitheliomas are found most frequently on the posterior surface of the hand, mucous membrane of the lip, tongue, gums, and in fact, the mucous membrane anywhere Those located at the inner canthus of the eye, the nasolabial fold, and about the alae, the ear or the eyelids may belong to another type I believe that in these types a most guarded prognosis must be given I believe that generally the Roentgen rays alone should not be depended on to cure epitheliomas in these regions

Pusey says [1]

> Rodent ulcer tissue yields, as a rule, more readily than squamous-cell carcinoma in the skin, but in the skin squamous-cell epitheliomata may be destroyed by Roentgen rays with definite certainty

The combination treatment that impresses me as the best in this group of cases is that of electrocoagulation, by which the macroscopic disease is totally destroyed locally, followed by deep Roentgen therapy locally, and in the glandular area leading therefrom If for any reason electrocoagulation cannot be applied preceding Roentgen therapy, then excision is best If metastasis has already taken place, or if there are enlarged glands in the lymphatic area draining from the location of the lesion, these glands should always be excised by the surgeon, even if the local disease is destroyed by electrocoagulation It is my experience in the treatment of metastatic glands associated with superficial malignant disease, that the Roentgen therapy applied over the glands tends to localize them, and under the influence of the rays they very generally break down, become necrotic and form abscesses, but the deeper portion of the posterior wall of the gland does not completely heal, and later the disease spreads Therefore, if there are any palpable glands present I immediately, at the beginning of treatment of the patient, request a surgeon to excise them. In one patient whom I treated successfully there was an epithelioma involving the angle of the mouth, the inner side of the cheek and the surface of the alveolar process; there was present, also, a single metastatic gland, not in the neighborhood of blood vessels or nerves, and I destroyed this gland successfully by plunging the electrocoagulation needle directly into the gland and cooking it locally. This sloughed away and healed perfectly, without the involvement of any other glands and without any appreciable scar, the scar remaining smooth and almost invisible. In this case, after the electrocoagulation I of course, applied also the Roentgen rays both locally and over the glandular area.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty Eighth Annual Session of the American Medical Association New York, June, 1917

[1] Pusey W A Jour Cutan Dis., February, 1913

DEGENERATING MOLES

All moles should be removed from the skin, if practical, before there has been an opportunity for degeneration or before they have become bruised or partially removed. If an attempt is made to remove them it must be a thorough process, and if excised, they must be excised wide of the lesion. I believe that the best means for the removal of moles is by desiccation or electrocoagulation.

They can be destroyed by electrocoagulation no matter how large. In my experience there has been no hemorrhage and no recurrence. If they are destroyed by electrocoagulation they should be destroyed thoroughly, and yet when they are removed for cosmetic reasons and there is no tendency to malignancy, one need not sacrifice unnecessarily the tissue round about. Generally, if they are small they can be removed without leaving an appreciable scar. A large pedunculated mole can easily be removed by the destruction of the peduncle. The large moles, and especially the black moles occurring in older people, should be destroyed or excised and this should be followed by deep Roentgen therapy. Ordinarily a single full dose of deep Roentgen therapy immediately following the excision or destruction is sufficient. It is probably safer to follow the destruction of all moles by a dose of deep Roentgen therapy locally, for the reason that occasionally a keloid tendency develops. The moles that have already degenerated should be destroyed very thoroughly, followed by deep Roentgen therapy, repeated two or three times, according to the indications in the individual case.

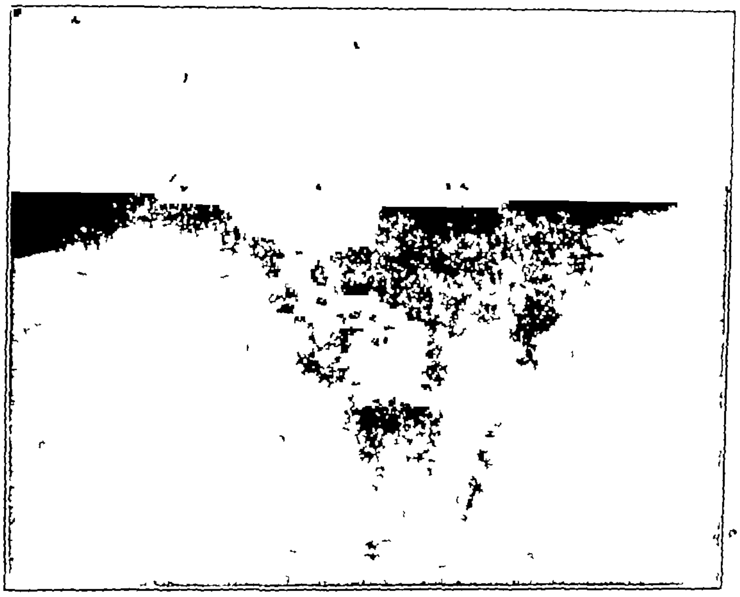

Fig 1.—Metastatic carcinoma showing complete involvement of the whole of the cervical vertebrae developing five years after amputation of the breast with no previous recurrence, all other metastases being associated with disease in two dorsal vertebrae, patient unable to support the head, head supported by a celluloid cast.

DEEP-SEATED MALIGNANT DISEASE

Carcinoma.—While in the treatment of superficial malignant disease the possibilities are very great, in the treatment of deep-seated malignant disease the limitations are correspondingly great. Deep-seated carcinoma should be further divided into (*a*) those that are operable and (*b*) those that are inoperable.

(*a*) Operable Carcinoma. In the past it has been, and at the present time still is the practice of conservative men to have the malignant disease thoroughly removed in all operable cases, and then followed by deep Roentgen therapy. This is undoubtedly the best procedure based on our knowledge today. While we have all seen patients who have apparently recovered from deep-seated malignancy under Roentgen therapy alone, the number of cases is too small to justify us at the present stage in recommending Roentgen therapy to the exclusion of operative procedures in an operable case. If operation is performed, it should be radical and complete. The Roentgen rays should not be depended on to eliminate part of the disease when the surgeon has removed only part of it. I should much rather treat a case without any operation whatever than one in which the surgeon has removed only a portion of the disease. An exception to this can be made when this operation is done purely for cosmetic purposes; that is, if a patient has a large sloughing gangrenous or necrotic carcinoma of the breast, it is sometimes best to eliminate this foul mass, not so much for the sake of the patient as for those around, because very generally this patient will not completely recover under any combination of treatments, and the patient and friends may as well have the benefit of cleanliness rather than the foulness associated with a necrotic carcinoma of the breast.

In every case of malignant disease in which operation is performed, whether by surgery or by electrocoagulation, the operation should be followed by thorough deep Roentgen therapy. This Roentgen therapy should be applied most thoroughly over the operative field and over the lymphatic areas immediately adjoining the operative field. I believe that the beneficial end-results of an operation can be doubled if thorough postoperative treatment is given. For example, it is generally admitted today by those surgeons who are most competent to speak that in cases of carcinoma of the breast in which operation is performed after the skin or glands have become involved, only about 22 per cent of the patients recover permanently. It is my impression that this percentage of permanent recovery can be doubled with thorough postoperative Roentgen-ray treatment.

The postoperative treatment, however, should be given as soon after the operation as possible; in fact, I believe that the best time to give this treatment is before suturing the open wound, provided the equipment and the Roentgenologist can be at hand so that no time is lost. If all preparations are made in advance, this after-treatment should not require more than approximately twenty minutes of added etherization. This immediate postoperative treatment is given just before closing the wound. After the artery clamps have been removed and all bleeding points have been controlled, the skin flap is thrown back and the whole area covered with sterile towels and the treatment given directly through the towels This eliminates danger of infection, and the only disadvantage is that of prolongation of the anesthetization for an additional period of approximately twenty minutes At present such cooperation is generally not practical though I believe it can be made so When such immediate treatment is not practical, I believe it should be given as soon after the operation as the patient can be removed to the Roentgen treatment room This will certainly be in less than two weeks even though the patient must travel a distance to get the treatment Primary treatment of deep-seated malignant disease is generally confined to the inoperable recurrent and metastatic cases

(*b*) Inoperable Deep-Seated Carcinoma In this general group one can never expect brilliant results One may see occasionally remarkable or almost miraculous results, but they are not permanently brilliant These patients rarely get entirely well, excepting in those cases in which the inoperability was not a question of extent of the disease Cases with malignant disease are inoperable for more than one reason 1 They are inoperable because the disease has extended so far as to involve essential organs, or it may have infiltrated the surrounding tissues so thoroughly as to make it impracticable to eliminate all the disease 2 They may be inoperable because of some associated constitutional disease, such as serious cardiac disease, serious pulmonary disease, diabetes or advanced arteriosclerosis 3 They are inoperable at times because the patient absolutely refuses to be operated on This third group is just as inoperable as any of the others, because in America today we cannot operate on a patient without the consent of either the patient or the guardian (when the patient is incompetent) The patients who refuse operation are probably rare, but they do occur Surgeons may dispute this fact, but surgeons and others should bear in mind that when patients consult a surgeon they have already made up their mind, at least one half, to be operated on This was bluntly expressed some time ago by a surgeon, when a patient consulted him and refused operation The surgeon said "Why did you consult me if you did not want to be operated on?" I have sent patients away from my office who refused operation when I believed operation was the best procedure One patient who thus refused operation died from the malignant disease without any other effort at treatment

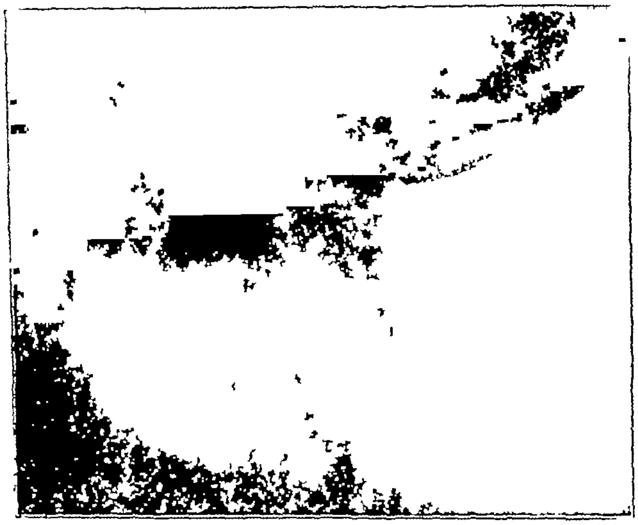

Fig 2 —The recalcification of the dorsal vertebrae one year later with disappearance of the patient's symptoms and with a reasonable amount of movement of the cervical vertebrae, both bending and rotation.

In the group of patients that are inoperable because of the advanced disease, the limitations of Roentgen therapy are great The disease can often be made to disappear completely At other times, however, it is only decreased in quantity In carcinoma of the breast, for example, large masses of carcinomatous tissue shrink, the ulcerating areas heal, the mass becomes movable, metastatic glands, or at least palpable glands in the lymphatic areas, may be made to disappear, and the life of the patient may be prolonged in comfort for eight or ten years, but very generally these patients will ultimately die of the disease There are exceptions to this rule, of course Occasionally one of these patients may be treated in such a manner as to transform an inoperable case into an operable one This has been my experience in several cases It has also been the experience of Boggs,[2] and some others

When the disease has shrunken to a small fibrous movable mass, and all the metastatic glands have disappeared, it is sometimes practicable for the surgeon to remove the disease locally, that is, remove the shrunken fibrous mass which remains Very generally when this shrunken fibrous mass is examined under the microscope, the pathologist will find a small nest of malignant cells surrounded by a great deal of fibrous tissue It is possible that such a nest of cells might lie dormant for the remainder of the patient's life, and the patient might die of some intercurrent disease, but very frequently these malignant cells in some way or other break their bounds and the disease recurs either locally or generally I believe, therefore, that when malignant disease under treatment has shrunken to a point at which it remains at a standstill, if practicable the surgeon should remove the remaining disease There should be a moderate amount of postoperative treatment then given because in operating the surgeon is in danger of cutting through some of these encapsulated groups of cells If such should occur, malignant cells are liberated and may become reimplanted into the soil which is already favorable for growth

In one such case which was at first inoperable, operation was performed by Dr Wayne Babcock The patient lived six years after the treatment and operation, and then died with obscure symptoms which may or may not have been due to metastatic malignant disease There was never any local recurrence, nor any recurrence in the palpable areas following this amputation or removal of the breast

In another case, Dr Laplace and I consulted preceding any treatment We both concluded that Roentgen therapy gave the best outlook, for breast and axillary glands and supraclavicular glands were involved After the disease under treatment had shrunken to a small fibrous mass, and after the axillary and supraclavicular glands again appeared normal, Dr Laplace at my request removed the disease locally This patient has remained perfectly well for four years, the scar is smooth and all the tissues are freely movable The patient developed carcinoma of the *oppo-*

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[2] Boggs, R H New York Med Jour, Nov 12, 1910

site breast subsequently and during my absence from the city consulted Dr Laplace, who removed this right breast, doing a radical operation without any preliminary treatment and without postoperative treatment There was a recurrence following this operation, and the patient has been under treatment over the right side during the past eighteen months, at first at intervals of a month, and later she was seen every few months This recurrence disappeared locally, but a general metastasis developed in the bones, and treatment has been discontinued This is a striking example of the value of Roentgen-ray treatments preceding operation in originally inoperable cases and also the value of postoperative treatment The second operation was done and was not followed by postoperative treatment until signs of recurrence had developed The local recurrence disappeared, but the general metastasis which had developed could not be controlled

2 *Cases Inoperable Because of Constitutional Disease*—In this group one of course finds all varieties and all stages of the disease In some instances the patients appear early, in others the disease is very advanced when they report to us for examination and opinion In the advanced group, I believe that some benefit can be obtained in practically all cases In the early group, I believe that a considerable number can be cured In general, the beneficial results to be obtained will vary with the extent of the disease and the degree of malignancy The results will, of course, vary also greatly with the skill and judgment used in the treatment of the case, also very much with the amount of treatment actually given, for I find repeatedly that patients are being treated by the Roentgen rays in a supposedly efficient manner when they are in fact obtaining only a fractional portion of the amount of treatment that they should have to accomplish the results at which the physician is aiming

3 *Patients That Absolutely Refuse Operative Procedure*—This group is small and can be further reduced by more tact in presenting the subject of operation to the patient In this group one likewise finds all stages of the disease One may see very early cases in which, as a result of the cancer propaganda, patients will sometimes consult the roentgenologist or physician because of a lump in the breast It may be so early that no one can definitely make a diagnosis either of malignancy or nonmalignancy Many of these cases are of course only cases of abnormal involution

In this group I believe that the majority can be made to disappear under thorough and proper Roentgen therapy Since surgeons believe that sooner or later all this group is liable to become malignant, if the patients absolutely refuse operation, it is our duty to give them at least the benefit of the Roentgen therapy, and I believe in the great majority of instances they will recover In making this statement I must not be misunderstood I am not recommending Roentgen therapy in early cases of carcinoma, and it is my practice when these patients consult me at my office to send them to the surgeon for opinion and operation I believe that if a consultation is held between the surgeon and the roentgenologist in these early cases when patients refuse operation, and in all cases of advanced disease, better results will be obtained, and fewer mistakes will occur

In general, a closer cooperation between the surgeon and the roentgenologist will produce more satisfactory results The inexperienced roentgenologist is more apt to rush into the treatment of early cases of tumors of the breast than the more experienced One would think, of course, that the opposite should be true I find frequently, as I am sure all surgeons find, that the most common mistake made in the treatment of malignant disease is the mistake of lack of early diagnosis As a result of this lack of early diagnosis, the patients are first treated by massage, poultices and caustics, until the disease has become so advanced that they can often make a diagnosis independent of the physician, before more expert opinion is asked

Carcinoma should be thought of in connection with every lump in the breast Carcinoma should be considered in every slowly healing ulcer, every ulcer that persists over a period of six weeks, especially if the mucous membrane is involved, and sarcoma should be taken into consideration in every tumor that develops outside of and very often when it involves the lymphatic glands

Carcinomas involving the internal organs can generally not be cured by Roentgen therapy, and the treatment of this group of cases should certainly be limited to the inoperable or recurrent case We should, therefore, urge operation in all cases of carcinoma of the internal organs if they are in an operable stage However, if they are inoperable, some benefit can generally be obtained by Roentgen therapy The progress of the disease can be delayed, the patient can be made more comfortable, and for a time all symptoms may be dispersed Some brilliant results have been recorded as the result of Roentgen therapy in the treatment of carcinoma of the uterus In only one case of carcinoma of the stomach have I seen anything that seemed brilliant[3]

In October, 1904, I was called to a hospital in a neighboring city to see a white man, aged 64, on whom an exploratory operation had been performed three weeks previously for carcinoma of the stomach Dr Joseph Price, who operated, found the lesser curvature involved by a large carcinoma. He made no attempt to remove it, and did not open the stomach The man had complained of symptoms referable to his stomach for a year previously He had two severe hemorrhages

At the beginning of treatment by means of the Roentgen rays he was bedfast, and very cachectic and emaciated The red blood corpuscles numbered 3 200 000, and hemoglobin 55 per cent. After six weeks of daily treatment he was able to walk, had gained in weight, and gained 1,000,000 in red blood corpuscles and 20 per cent in hemoglobin He came to the city three times a week for treatment, and at the end of six months was attending to some business He then developed symptoms of appendicitis Dr Price again did an exploratory operation He found no appendicitis and no carcinoma He found adhesions at the site of the original operation, which he liberated The patient died in about three weeks, and no necropsy was permitted This case had at least the outward appearance of success

Deep Seated Sarcoma—Sarcoma is generally much more responsive than carcinoma to Roentgen therapy In general, I believe the majority of sarcomas can be made to disappear under Roentgen therapy with modern technic It is my opinion that Roentgen therapy is more satisfactory than surgery except in periosteal sarcoma, but I believe that in all instances an operation for sarcoma should be followed by thorough postoperative treatment over the wound

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[3] Pfahler Am Jour Med Sc, April, 1909

Grouping the cases of sarcoma according to their responsiveness to Roentgen therapy I would place first the medullary sarcoma of bone, second, the sarcomas involving the soft tissues and third, the periosteal sarcomas The last group can rarely be expected to disappear under Roentgen therapy, and since this group of sarcomas commonly affects the extremities, amputation should be advised as early as the diagnosis can be made, and in each instance the operation should be followed by thorough deep Roentgen therapy, for we all realize the likelihood of metastasis and recurrence in this group of cases

CONCLUSIONS

1 It is possible to cure the majority of cases of superficial malignant disease by Roentgen therapy, and it is possible to cure, I believe, all cases of superficial malignant disease by a combination of electro-coagulation and Roentgen therapy if applied before metastasis has taken place deep tissues are involved

2 Combined treatment should be used wherever the end-results will be improved, and this will apply in the majority of instances There should be a combination of either electro-coagulation and Roentgen therapy or operation and electrotherapy

3 In the great majority of cases when the malignant disease has extended to the glands, to the bones or to the internal organs from the breast, for example, or from the uterus, the patient cannot be permanently cured by the Roentgen rays The patient can, however, be greatly benefited even in these advanced cases

4 The Roentgen rays with proper technic can be expected to cure the majority of cases of sarcoma, the most responsive to the treatment being medullary bone cases, the sarcomas involving the soft tissues, and least of all the periosteal sarcomas

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NEW GROWTHS OF THE MEDIASTINUM

WITH SPECIAL REFERENCE TO THEIR TREATMENT WITH RADIUM *

CURTIS F BURNAM, M D
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While the sole purpose of this paper is to show through the detailed report of individual cases that radium may be used as an effectual remedy for many primary mediastinal new growths, an incurable habit of introduction seems to make indispensable a few preliminary statements dealing broadly with the clinical and pathologic aspects of the diseases under consideration

Malignant new growths are much commoner than benign in the mediastinum Metastatic lymphosarcoma, Hodgkin's disease, carcinoma and sarcoma are very frequent, while primary mediastinal malignancy is rare In these secondary cases, however, the primary lesion almost invariably dominates the clinical picture, from the standpoints both of diagnosis and of treatment.

A roentgenographic examination of the chest should be made before the treatment, operative or otherwise, of any malignant growth is undertaken, particularly in cases of tumors of the thyroid, ovary, breast and testicle The very interesting data which we have accumulated as to the effects of radium on these secondary mediastinal tumors will be considered not in this paper, but in subsequent reports dealing with the classes of neoplasms to which they belong The primary tumors of the chest wall, of the pleura of the esophagus and of the lungs will also be excluded from this paper, but reported in separate communications to appear later

So far as I have been able to ascertain, there has never been a surgical cure of a malignant mediastinal tumor A number of operations have been done to relieve acute pressure symptoms, and an excellent statement of this kind of work has been made by Friedrich[6] Several cases of great improvement or cure through Roentgen-ray treatments are on record

Not much detail is at hand in regard to any of these patients, and in only one was a histologic diagnosis available

In addition to the conditions described, it should be remembered that large mediastinal masses due to tuberculosis and syphilis are occasionally observed Martini,[12] in a series of fourteen mediastinal tumors, describes three syphilitic tumors, two tuberculous tumors, three lymphosarcomas, two sarcomas other than lymphosarcoma, one carcinoma, one hypertrophied thymus, one retrosternal thyroid, and one undiagnosed tumor

Of the various kinds of tumors which occur in the chest, perhaps the most frequent is aortic aneurysm In every differential diagnosis of mediastinal tumor, aortic aneurysm must be ruled out, which can usually be done from the clinical history and physical examinations

Great reliance is placed on the fluoroscopic demonstration of expansile pulsation It is of interest to note that in Case 5 of the series herein reported, an apparent expansile pulsation led to an incorrect diagnosis of aneurysm Quite recently we made a positive diagnosis of solid tumor in a patient in whom no pulsation was visible, but changed our decision when the necropsy revealed an immense aneurysm, which had ruptured at one point

SYMPTOMS

The initial subjective disturbances of mediastinal tumor are quite variable Slight discomfort in the chest on exertion and a cough are the most common, sometimes there is hoarseness due to vocal cord paralysis, as in Case 4, occasionally difficulty in swallowing, nausea and abdominal pain, as in Case 7, or spastic paralysis of the lower extremities, as in Case 2 One quite recent case of mediastinal Hodgkin's disease was treated for months by skin specialists for pruritus before the true nature of the disease came to light

In the later stages, dyspnea, cyanosis, dilatation of the veins of the face and the chest, and disturbance of the heart and aorta, severe pain and inanition may arise Fluid in the pleural and pericardial cavities is quite common The benign growths may give only mild disturbance for many years, but the malignant tumors usually advance rapidly Death is most frequently from asphyxia

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* Read before the Section on Pharmacology and Therapeutics at the Sixty Eighth Annual Session of the American Medical Association, New York, June, 1917

* On account of lack of space, this article is abbreviated in The Journal. The complete article appears in the reprints a copy of which may be obtained on application to the author

6 Friedrich, P L Beitr z. klin. Chir 93, 312

12 Martini, Piazza Ann d. Clin. Med 1914 5, Nos. 2 and 3

DIAGNOSIS

The recognition of a mediastinal tumor rests on (1) ordinary physical examination of the chest, (2) roentgenographic and fluoroscopic examinations, and (3) direct examinations of the larynx, trachea and esophagus in patients in whom pressure symptoms on either the trachea or esophagus have developed

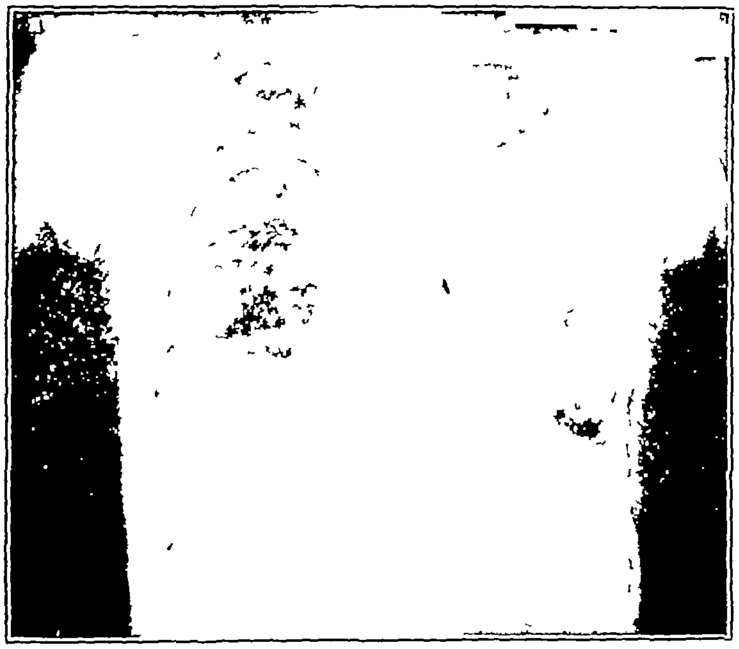

Fig 5 (Case 3) —Large lymphosarcoma which bulged above the clavicle exteriorly, June 4, 1913

The differentiation of the primary from the secondary tumors is made by an exhaustive general physical examination to exclude carcinoma or sarcoma elsewhere than in the chest The general examination, plus the history and the Wassermann and tuberculin tests, may differentiate mediastinal tumor from tuberculosis, syphilis or ordinary abscess A history of pruritus and a blood picture, such as Bunting describes as typical for Hodgkin's disease, is very suggestive of that disease It would seem, however, that the blood picture alone can never be conclusive when the tumor is limited to the mediastinum

If the tumor has grown up through the thorax into the neck, or lies directly against the chest wall, or has metastasized to a superficial gland, an operation and removal of tissue for histologic study is indicated, and will usually allow a positive classification of the neoplasm

TREATMENT

In view of our experiences, I believe that as soon as a diagnosis is made, treatment with radium should be instituted promptly and, when this is not available, the Roentgen ray should be tried In the series of eight cases reported in this paper, two patients (Cases 4 and 8) had had Roentgen-ray treatments without benefit before the radium was started

Considerable amounts of radium (a gram or more, if possible) are necessary properly to carry out the treatments In order to secure penetration into the depths and to avoid injury of the skin, lead filters to absorb all but the penetrating gamma rays should be used, and a fixed distance from the skin established In none of the reported cases was the slightest irritation of the skin produced by the treatments The exact technic employed in each case is given with the case record As will be seen, the treatments have been variable, depending in part on the response of the patient and in part on the radium available for use

RESULTS

After a preliminary nausea for a day or two following the treatment (this condition was present in only half of the cases), the subjective symptoms were usually greatly relieved

1 With the exception of the first, in each of the eight cases the patients have continuously improved (Figs 1 and 2)

2 One patient has now been under observation for three years (Fig 3) As a result of the treatment, the paralysis is entirely relieved, and there is no evidence of the presence of the disease except as shown by the roentgenogram (Fig 4)

3 In one patient the lymphosarcoma has been gone for four years after treatment was started (Figs 5, 6 and 7)

4 Vocal cord paralysis has cleared up in another patient, and evidences of the mediastinal tumor have been absent for more than a year (Figs 8 and 9)

5 In a fifth case (Figs 10 and 11), although treatment thus far given has been insufficient, the patient is free from all subjective disturbances and the growth has become markedly reduced in size eighteen months after the treatment was instituted

6 One year after treatment was begun, the roentgenogram in a case of mixed-cell sarcoma (Figs 12, 13 and 14) show but little sign of the tumor, and the patient has symptomatically recovered

7 A desperately ill patient with a granuloma, probably Hodgkin's disease, is apparently in perfect health one year after treatment was started (Figs 15, 16 and 17)

8 Thirty months after the beginning of treatment, a patient who had a mediastinal tumor with hydrothorax is now apparently fully recovered (Figs 18 and 19)

In addition to these eight cases, it should be stated that two patients with tumor of unknown type improved greatly, but have withdrawn from treatment, one patient with sarcoma improved greatly until a burn precluded treatment, and the tumor has since grown much worse, one small growth of unknown character has been uninfluenced by treatment, and has remained stationary for more than a year, and one spindle-cell sarcoma of the heart was not benefited

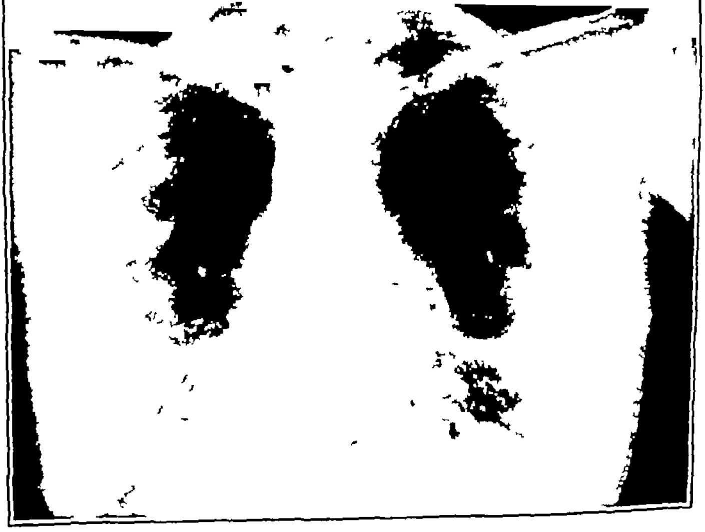

Fig 7 (Case 3) —Tumor, April, 1917, practically cleared up under radium therapy

REPORT OF CASES

Case 1 (872) —*Malignant mediastinal tumor, probably of thymus origin Marked improvement of symptoms as a result of treatment Final death of patient*

History.—R W girl, aged 4 was admitted to the hospital, June 2 1914 with a severe cough and great difficulty in respiration

Examination.—The patient was well nourished and well developed with good color She was suffering with a severe cough and a tendency on the slightest movement to great shortness of breath and severe dyspnea The condition was rapidly growing worse A roentgenogram of the chest disclosed a definite mass behind the manubrium

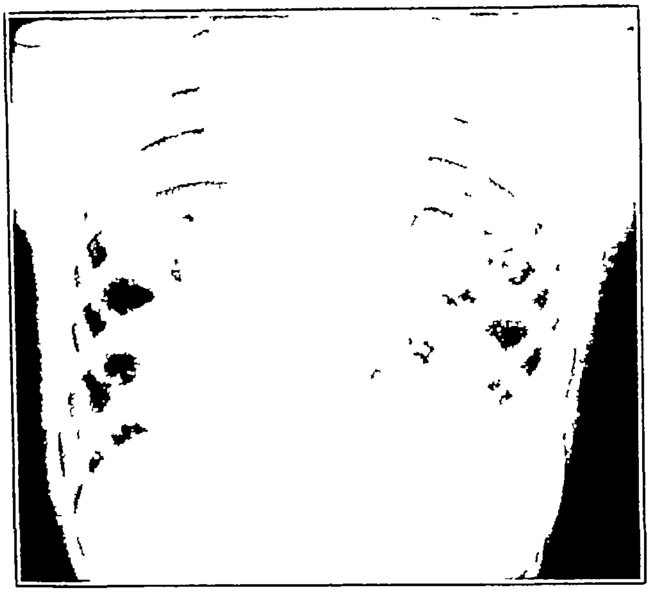

Fig. 8 (Case 4).—Extensive tumor of the mediastinum April 27 1916 which extends out into the lung tissue

Treatment.—On the morning of June 2, 1914 1 911 mg of radium, screened with 3 mm of lead and 1½ inches of gauze were applied over the sternum for one and one-quarter hours There was no nausea or general discomfort following this treatment, and the next morning the patient was breathing comfortably Within four or five days after the treatment the child had apparently returned to normal health At the time we believed that we were probably dealing with a simple hypertrophy of the thymus gland.

The patient remained comfortable and in good health until the latter part of July, when she apparently took cold Then the cough and difficulty in breathing returned, but in a milder form July 30, the patient received a second treatment identical with that given June 2 Again there was a subsidence of symptoms, but the parents were instructed to bring the child in for further treatment. August 12, treatment with 1,911 mg of radium, filtered by 3 mm of lead and 2½ inches of gauze, was given for three and three-quarter hours on the upper chest, particularly over the front and from behind. August 18, the patient was again treated with 1,911 mg of radium, filtered by 3 mm of lead and 2½ inches of gauze, for four hours Roentgenograms and other examinations at this time revealed no evidence whatever of disease.

The patient had no further respiratory trouble, but early in January she began to suffer with nausea and vomiting, and a large abdominal mass appeared She died the latter part of January, 1915, from general weakness

Case 2 (1010)—*An extensive sarcoma of the posterior mediastinum, leading to paralysis of the legs and difficulty with the vesical and rectal sphincters Entire relief of symptoms although the roentgenogram still shows a shadow three years after the first treatment*

History.—Miss M V J, aged 19, complained of pain in the back and legs, and of paralysis of the legs She was admitted to the hospital, Feb 13, 1914 No history of malignant tumors in the family was given, and the patient had always been healthy, with the exception of pneumonia at the age of 14, until the present trouble developed Her present illness began in December, 1912, with a dull aching pain in the back, which was worse when she was on her feet There was increased frequency of voiding and a numb feeling below the waist Her gait became unsteady, and finally she was unable to move her legs or even her toes

Examination.—She was well nourished, had excellent color and did not seem ill except for the paralysis

Between the date of her admission to the hospital and March 25, the patient grew steadily worse as far as the paralysis was concerned A diagnosis of chest tumor was made and an exploratory operation was done, March 25, by Dr J M T Finney, through the left side of the back, and a large extremely vascular tumor was found, from which a piece was removed Unfortunately, this specimen was lost, so that a diagnosis as to the exact nature of this growth is not obtainable Following this operation, the patient was a little better for two weeks, but she again became worse

Treatment.—The patient was given radiation, May 21, 1914, with 1 583 mg of radium through 3 mm of lead and 1 inch of gauze on each of 12 areas, on the back and left chest, one hour over each area She was very much nauseated and upset by this treatment for several days However, the condition began to improve and within three weeks she could move her feet and legs in bed and was beginning to be able to stand July 27, 1914, a second treatment of twelve and one-half hours was given with 1 911 mg of radium, screened by 3 mm of lead and 6 inches of gauze, over the site of the tumor through the back Dec 20, 1914, the patient was again treated with 1 911 mg of radium, screened by 3 mm of lead and 4 inches of gauze over one area in front and one area on the back of the left chest for a total of fifteen hours During the fall of 1914, the patient's improvement continued, and she was able to walk easily and resume her duties at home Between Dec. 20 1914, and December, 1915, the improvement continued steadily There was not the slightest difficulty in walking, running dancing or any physical exercise. The reflexes were still somewhat exaggerated The patient's general condition was most excellent The roentgenogram which was taken showed a moderate decrease in the area of the shadow There was no further treatment given until March 26 1916 when the treatment was 2,017 mg of radium, screened with 1½ inches of gauze and 3 mm of lead over

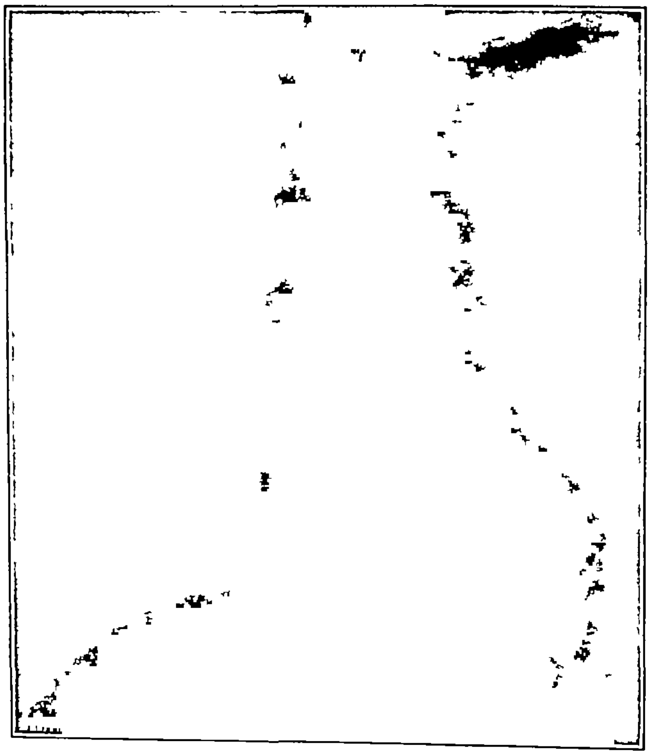

Fig 9 (Case 4).—Marked reduction in the size of the tumor March 15 1917 following the application of radium at intervals for about five months

rest of the body, realizing that the two effects counteract each other

Dr. John A P Millet, Buffalo If we take the stand that the effect of radium application is due entirely to its local action, we are on dangerous ground When we consider the profound effect of this substance on the blood-forming organs it does not seem unjustifiable to assume that at least some of its effects are due to a stimulation or depression of the immunologic forces of the body cells This supposition is strengthened by the familiar fact that it is by no means possible to foretell the result of all applications on the basis of past experience Two individuals having the same clinical condition may react quite differently to radium treatment Using 50 mg radium, we have been able to demonstrate profound changes in the blood picture of the patient under treatment, both during the application and for many weeks afterward I was much interested, however, in Dr Holding's description of the local effects as demonstrated histologically In many cases, notably those of lymphosarcoma, we see huge masses disappear under the Roentgen ray or radium, while the patient goes rapidly down hill and dies I should like to hear suggestions as to the mechanism of this breakdown of the body's defensive forces Is it always due merely to absorption of toxic material, or may not the defensive forces in such cases have been injured by the intended remedial agent?

Dr Albert Soiland, Los Angeles There is a little friction between the schools of roentgenotherapists and radiotherapists As Dr Pfahler said, he uses Roentgen ray in some cases and radium in others Why use both agents superficially? If there is a therapeutic difference on the skin, let us learn this difference Personally, I have used both agents, but the Roentgen ray more extensively, and the results differ in no way from those obtained by Drs Pfahler, Burnam and Holding, wherein radium has been the active agent.

Dr C E Alliaume, Utica, N Y It seems necessary that every paper on the treatment of cancer or deep seated morbid growths by radium should be prefaced by a paper on the physics of radium, because the subject is usually not understood It has been demonstrated that the rays of radium are more penetrating than those of the Roentgen ray The gamma rays from a certain quantity of radium will penetrate 12 inches of solid lead or steel, and if this is true it is possible for the radium rays to penetrate through any part of the body One of the reasons why a good photograph cannot be made with radium is because it is so penetrating that it does not throw the same shadow as the Roentgen ray

Dr George E Pfahler, Philadelphia In answer to some of these discussions, I should first like to make it clear that I believe radium and the Roentgen rays should never be used together through the same area of skin, because we are then using two agents which produce similar effects, and in which the dosage of each is difficult to measure and estimate The action of radium and Roentgen rays are approximately the same if like character of rays is used, and in like quantity The Roentgen-ray spectrum runs through a whole scale from soft to the most penetrating ray, and exciting a Coolidge tube with 100,000 volts produces almost the same rays as the gamma rays of radium Even when 100,000 volts are passed through a Coolidge tube there are also produced a great many soft rays, in addition to the hard or penetrating rays and likewise, with a specimen of radium, one gets a small quantity of hard and extremely penetrating rays and a much greater quantity of soft and slightly or moderately penetrating rays Therefore, the ultimate action is similar with the same selection of rays and the same quantity I am glad to speak on this point, and hope Dr Burnam will contradict me or confirm what I say

With reference to mediastinal growths, one cannot get such results as Dr Burnam has described with small quantities of radium such as 25 mg With a great mass of radium, which will permit of much filtration, one can, of course, produce such results When using the Roentgen rays, however, one has a much larger volume of penetrating rays and all of Dr Burnam's results can be produced by the Roentgen rays if efficiently given When both are inefficiently given, neither will produce results

Dr Curtis F Burnam, Baltimore I had not intended to make any comparison between the efficacy of Roentgen rays and radium rays It is not true that they are physically the same thing The hard gamma rays from radium are much more penetrating than the hardest Roentgen rays My own experience would lead me to consider the gamma radiation from radium more effectual biologically than the Roentgen ray in connection with the treatment of new growths This may not, however, be an actual qualitative difference, but due to the difference of technic in radiation The Roentgen ray employs a large quantity for a very short interval, the gamma radiation a similar amount for a longer interval It is certain that with 100 mg of radium at a given distance for ten hours, one secures a more pronounced biologic effect than with 1,000 mg for one hour

In the cases which I have reported I feel that the results could be duplicated by the use of 3 or 4 mg, although I have used myself as much as a gram or two with some of them.

I should like to emphasize the point that there have been seven apparent cures out of eight cases, and these apparent cures have extended over considerable periods of time So far as I have been able to ascertain from the literature, there has not been a single case of cure of a malignant mediastinal neoplasm through surgical means I find that there are four or five cases reported in the last four or five years as healed or benefited by Roentgen-ray treatments

Dr Holding, I feel, goes too far in saying that no squamous cell cancer can be cured by radiation They are unquestionably much more resistant than the basal cell type In treating them the single dose method is much inferior to a frequently repeated dose Care should be taken, however, never to produce irritation or the treatments will have to be interrupted and a complete result will not be obtained It is highly important, as Dr Holding has said, to have accurate histologic studies made of each growth before undertaking treatment, and I feel that the technic of treatment will vary with the type of growth As Dr Mallet has pointed out, and as I firmly believe, there are other factors connected with the resistance of the patient which are most important The only clinical condition, however, which has impressed me as being of value in the prognosis is that a growth of a given type, which has recurred late after operation, or which is growing very slowly, is much more likely to be favorably influenced than one which is growing rapidly

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The Fourth Thousand Cases at Paignton—Major D Pearce Penhallow, chief surgeon of the American Women's War Hospital, Paignton, South Devon, England, has published an analytical report of the fourth thousand cases treated at the hospital between Aug 20, 1916, and May 29, 1917, inclusive Of the 650 surgical cases, 395 were cured, 243 were improved, ten were unimproved, and two died, one from cerebral abscess following a shrapnel wound of the skull, and the other from pulmonary embolism after a gunshot wound of the chest. Of the 350 medical cases, 120 were cured, 220 improved, eight unimproved, and two died, one from cerebrospinal meningitis and one from nephritis Of the surgical cases the majority were brought to the hospital within five to twenty days from the time they were on duty Of the medical cases the majority were brought to the hospital from seven to twenty-seven days after the beginning of their illness The average time spent in the hospital was fifty days Of the 104 in the hospital for ninety-eight days and upward, four were under treatment for more than ten months, seven from eight to nine months, eighteen between six and seven months, eighteen between five and six months, twenty-five between four and five months, and the remainder between fourteen weeks and four months During this period there were fifteen convoys received from France, the patients in each convoy varying from 160 to thirty-eight and amounting in all to 1,184 At the beginning of the period there were 212 patients in the hospital, and at the close of the period there were 184 patients

Clinical Notes, Suggestions, and New Instruments

VOLVULUS: REPORT OF A CASE

C. H. Edwards, M.D., Orlando, Fla.

Volvulus is one of the rarer conditions of the intestinal tract which produces ileus. The case herein described is of unusual interest because of the nature of the onset and the portion of the intestine involved and its position.

E. S., a man, aged 62 years, worked for forty years in cotton mills as operator and later as overseer. He has had hemorrhoids and chronic bronchitis for forty-five years, but rarely consulted a physician for these conditions and never for any other. In December, 1915, while digging a path in the snow, he had a sudden attack of pain in the abdomen which disappeared in a few moments. Later, tenderness developed, followed by pain and vomiting. A diagnosis of appendicitis was made. Operation was advised but refused. Two hypodermics of morphin relieved the pain, and after two days' repeated use of high enemas, the bowels began to move. The patient was in bed most of the time for six months thereafter with a marked obstipation, and usually with distention and pain on the left side. He was told that this was due to a "twist of the gut." Since that time he has had more or less tenderness in the abdomen, with increased formation of gas in the stomach and a gradual loss of weight.

The present disturbance began June 8. The patient worked in his garden until 10 a. m. The sun was bright and he stopped work because he felt dizzy. Half an hour later he had a copious bowel movement and shortly afterward began to have a sense of discomfort in the abdomen. This increased gradually until 4 p. m., when he went to bed, thereafter spending most of his time in a modified knee-chest position, the assumption of which gave him some relief. Although the same medication was instituted which relieved his first attack, that is, paregoric and high enemas, without hypodermics, however, at midnight the pain became intense and the patient began to vomit. The first enema was colored and brought away a little gas, but the others had no effect. I saw the patient at 2 a. m., when the pulse rate was 70, respiration 28 and temperature 99.5. There was a soft fluctuating mass distending the abdomen on the left side, tender on pressure and tympanitic. A diagnosis of intestinal obstruction was made, probably due to volvulus. Operation was advised, and refused, because of recovery eighteen months before. Three-eighths grain of morphin by hypodermic gave some relief. I saw him again at 8 a. m. and 2 p. m. The condition was unchanged, the patient having dozed at intervals since the hypodermic. Operation was still refused. At 2 p. m. a second hypodermic of one-eighth grain of morphin was given and the family was advised to get another physician in consultation unless consent was given for operation. At 6 p. m. I was asked to come in a hurry as the patient had vomited fecal material. The tumor was still present, pulse 110, respiration 34, temperature 101. Consent was given for operation.

At 7:30 p. m. the patient was opened in the midline. A distended loop of large intestine filled the left side of the abdomen. This was delivered with difficulty and proved to be the cecum, about 15 inches long and 8 inches in diameter. The tip of the appendix, about 6 inches long, was in a mass of adhesions attached to the sacral prominence in the midline, and apparently around this point as a fulcrum the cecum, with its tremenduously elongated mesentery, had made a half turn and lodged on the left side. There was no gangrenous tissue from the strangulation. By a simple twist the cecum fell into its normal position and its contents could be forced into the transverse colon. As the patient was moribund the appendix was hurriedly removed, a small reef was made in the mesentery, and the abdominal incision rapidly closed. The patient's life hung in the balance for five hours, since which time there has been progressive recovery.

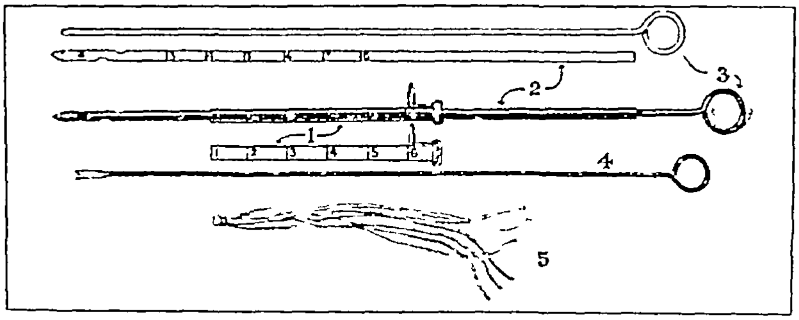
A NEW APPARATUS FOR INTRAVENTRICULAR DRAINAGE

Y. C. Lott, M.D., New York

House Resident, Neurologic Surgery, New York Polyclinic Medical School and Hospital

This instrument has been devised for exploring different regions of the brain and also as a means of instituting permanent ventricular drainage in cases of internal hydrocephalus, on the service of Dr. William Sharpe.

It consists of a dull-pointed ventricular puncture needle, 15 cm. long, with two eyelet openings near the end, a forked stylet 15 cm. long, a casing 6 cm. long, and a probe 15 cm. long, all are graduated in centimeters. When the ventricular cavity is entered, the stylet is removed, allowing the fluid to escape. If a permanent drainage is desired, the depth of the cavity is ascertained, Stylet 3 is removed, and the outer casing 1, 6 cm. long, and also graduated in centimeters, is inserted over the puncture needle, 2, to the desired depth. There the casing is held in the proper position by means of the handle, and the puncture needle is now removed, leaving the casing, 1, in situ, a forked stylet, 4, graduated in centimeters, and 15 cm. *long, carries the linen strands to the desired depth* in the ventricles, and is held in place while the casing, 1, is withdrawn. Then the stylet 4, holding the linen strands, 5, in the proper place and depth, is removed, and the linen strands are brought out through the cerebral cortex, the temporal muscle and fascia under the skin. The linen strands are very slowly absorbed (in from five to seven months), and in the meantime this artificial cortical channel is lined with endothelium about the linen strands, and permanent drainage of the cerebrospinal fluid is thereby obtained. With this drainage apparatus, a minimum amount of trauma is done to the brain tissue, and the drainage material is left in situ at the point desired in the ventricles.



Details of apparatus for intraventricular drainage

A RACK FOR FACILITATING THE HANDLING OF SMALL DEEP SKIN GRAFTS

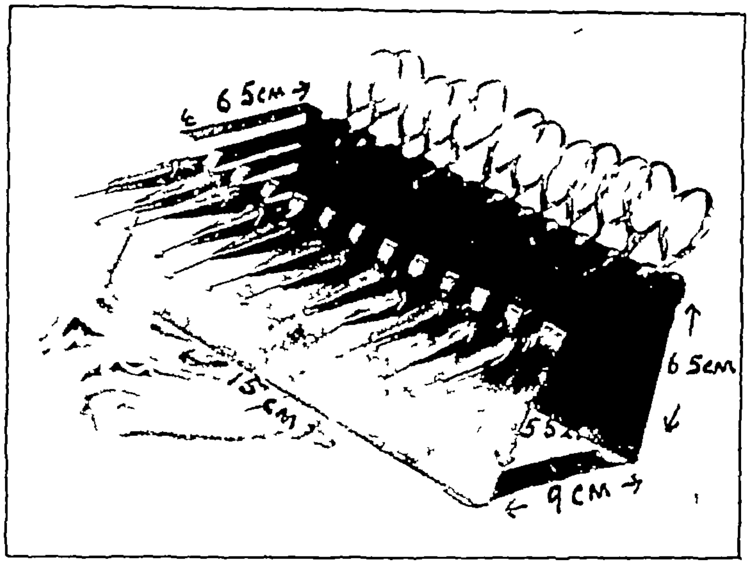
John Staige Davis, M.D., Baltimore

The appliance here illustrated is for facilitating the handling of small deep skin grafts. When two or more are working on a large wound, the grafts are often cut faster than they can be applied. As a rule there is no convenient location to stack the artery clamps holding needles and grafts. In consequence an instrument is often upset or slips, the graft is brushed off, and is either lost, or much time is wasted in trying to pick it up. In order to eliminate this inconvenience, I devised this slotted metal rack to hold the clamps. The rack is made of 18 gage sheet copper, so bent that the end view shows the form of a trapezium. The longest side of this figure is used as the base, and to facilitate cleaning is open, except for three strips which are necessary to brace it. The twelve slots are made on the side opposite the base, and each is wide enough to admit the ordinary Halsted artery clamp.

The measurements are: base, 9 cm. long, surface carrying slots, 6.5 cm. long, sides, 5.5 and 6.5 cm. long. The full length of the rack is 15 cm. Longer racks may be made, but the size described is convenient for ordinary use.

The rack can be used with great comfort when one man is cutting and also placing the grafts The twelve slots are filled and the rack is then moved close to the wound to be grafted, and all these grafts are then applied This maneuver can be repeated as often as necessary, and it can be readily seen that an enormous amount of labor is saved, as without this frame each graft would have to be placed on the wound as it was cut.

When a large wound is being grafted with small deep grafts, the method of procedure is as follows The rack, with its highest side toward the operator, is placed in a position convenient for him Then as the grafts are cut the clamps are dropped into the slots, and when the cutting is faster than the placing, the clamps are moved along progressively toward the placer, by the nurse, so that those grafts first cut will be applied first.



Rack for facilitating the handling of small deep skin grafts In the illustration the rack is tilted in order to show each slot Note the dimensions The rack is filled with Halsted clamps, each carrying a straight intestinal needle The handles of the clamps are on the highest side of the rack. The slope is sufficient to prevent them from sliding, and thus brushing off the grafts, which can be seen on each needle

1200 Cathedral Street.

AN ACID POLYCHROME-METHYLENE BLUE SOLUTION FOR ROUTINE AND SPECIAL STAINING *

E W Goodpasture, Boston

This solution has been found useful in staining frozen sections for rapid diagnosis, and as a differential stain for secretion granules, following eosin

When methylene blue is boiled with an alkali, the two dyes, methylene violet and methylene azur, and probably others, are formed by oxidation Unna recognized that this change gradually takes place in old alkaline solutions of methylene blue, and he utilized the resulting "polychrome-methylene blue" for special staining purposes These dyes in combination with eosin (Romanowsky stain and modifications), applied to cells and tissue with proper technic, afford a great deal of differentiation and pleasing contrast

The following method has been devised for the staining of frozen sections fixed in liquor formaldehydi and for staining paraffin sections fixed in liquor formaldehydi, liquor formaldehydi-Zenker or alcohol after eosin staining

An acid polychrome-methylene blue solution is made from methylene blue (Koch f bac), 1 gm , potassium carbonate, 1 gm , and distilled water, 400 c c , dissolved thoroughly and boiled in a flask for thirty minutes The methylene blue will be polychromed, and most of it precipitated from solution When the solution is cool, glacial acetic acid, 3 c c , is added The whole is shaken thoroughly until the precipitate is dissolved, and then boiled gently for five minutes, or until the solution is concentrated to a volume of 200 c c. It is cooled in tap water The solution is ready for use immediately It may be used over and over again, it does not precipitate, and it keeps indefinitely

For staining frozen sections, a few cubic centimeters of the polychrome methylene blue solution are placed in a dish, and in this the sections are stained for one minute They will not overstain if left much longer They are then washed in water and mounted in water or glycerin, better in water A good contrast is obtained in this manner Nuclei are stained deep purple and connective tissue a bright rose red

An acid polychrome methylene blue and eosin stain will be found very useful for staining differentially the zymogen, and the alpha and beta granules in the pancreas, after fixation in neutral liquor formaldehydi-Zenker, or liquor formaldehydi-bichromate The fresher the tissue, of course, the better the preparation

Forty per cent dilution of liquor formaldehydi may be kept neutral with an excess of calcium carbonate or lead oxid Immediately before the tissue is to be fixed, 10 c.c. of neutral liquor formaldehydi are added to 90 c c. of Zenker's solution without acetic acid, or to 90 c c of 2 5 per cent. potassium bichromate Pieces of tissue from 3 to 4 mm in thickness should be used They are fixed for twenty-four hours, washed in running water twenty-four hours, dehydrated in alcohol and embedded in paraffin

Paraffin sections are treated with (1) potassium permanganate, 1 per cent., one minute, (2) oxalic acid, 5 per cent., one minute, and are (3) washed thoroughly in water, then with (4) an aqueous solution containing 1 per cent. eosin and 1 per cent potassium bichromate from one to five minutes, (5) washed hastily in water, then with (6) acid polychrome methylene blue, from one to five minutes, they are (7) washed hastily in water and differentiated rapidly in 95 per cent. and absolute alcohol, and treated with (8) xylene and balsam

In properly stained sections, zymogen granules stain deep purple, protoplasm light blue, nuclei light purple, alpha granules brick red, and beta granules dark blue.

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* From the Pathological Laboratories of the Peter Bent Brigham Hospital and the Harvard Medical School

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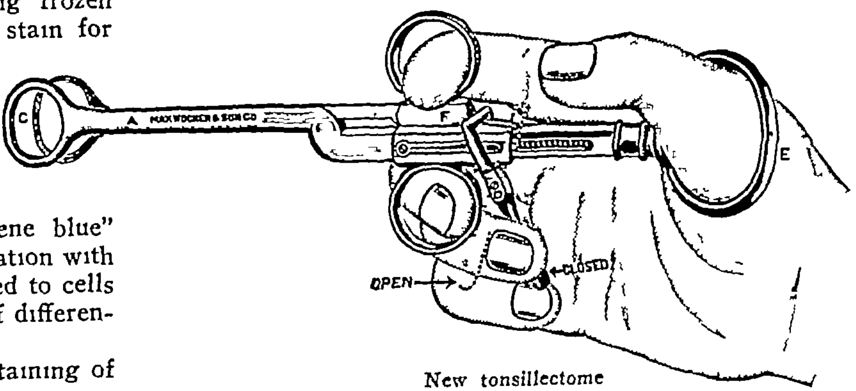
A NEW TONSILLECTOME

Frederick W Lamb, M D, Cincinnati

I have been using Beck's tonsillectome with satisfaction for several years However, I have had difficulty at times with the wire loops It is annoying to have the wire slip out from under the set screw or slip through the hole in the stylet when it should be closing down behind the tonsil



New tonsillectome

To obviate this difficulty I have devised a blade to take the place of the wire. The cutting edge is dull and rounded so that in effect it is much the same as a wire. It is held in place by a set screw which passes entirely through a hole in the blade, therefore it cannot slip It is in reality a permanent, nonbreakable, "nonslippable" snare which never requires rethreading I have used this instrument in a great many cases and find that it enucleates the tonsil thoroughly and completely in its capsule leaving a smooth clean fossa and with a minimum amount of hemorrhage

A CONVENIENT METHOD FOR RECORDING DATA ON ROENTGEN RAY PLATES

C. D Blachly B S M D Drumright Okla

The articles necessary are a special ink described below, a stub pen lead filings and a small blank card

The ink is made by dissolving one part of liquid glue in five parts of water and adding sufficient carbolfuchsin or other dye to color it The lead filings are made by filing metallic lead with an ordinary 8 inch steel file, one even finer is better

The name date, part to be photographed or other data required are written on the blank card in a round plain heavy script The card is covered with the lead filings while the ink is still wet and let stand for a moment The filings which are not held by the glue in the ink are shaken off and the card is ready for use The card is laid on any convenient part of the plate while the plate is being exposed When it is developed the data will show up in clear white letters that will not rub off or become dimmed by handling

A NEW AND SIMPLE METHOD FOR COUNTING BLOOD PLATELETS

Reuben Ottenberg M D and Nathan Rosenthal M D, New York

A simple and easy method of counting blood platelets is greatly to be desired The methods at present available are either too inaccurate or too difficult and time-consuming The result is that platelet counts are not done as a routine and that our knowledge of their clinical significance is still rather meager

The well known preservative effects of sodium citrate toward blood platelets suggested to us its use in counting them, and the obvious advantages of counting them in the same counting chamber as the red blood cells led us to devise what we believe to be the simplest and most accurate method

This method has the advantage that it does not involve any additional step in a blood count, as the red cells are counted at the same time as the platelets The trifling work required to count the platelets by this method should lead to the general adoption of the platelet count as a necessary part of a full blood examination

The method consists of the use of 3 per cent. sodium citrate as diluting fluid The blood is diluted 1 200 in the hemocytometer pipet as though for a red cell count, and a drop is put on the counting chamber cell in the usual manner The counting chamber must rest for ten minutes before the count is made, to allow time for the platelets to settle to the level of the rulings This is essential

The platelets are counted in the same manner as red cells, and the calculation is the same except that for accurate work it is necessary to count at least twice as many squares, and when the platelets are diminished in number, three or four times as many squares as in counting red cells The calculation then consists of dividing the total number of platelets counted by 2, 3 or 4, as the case may be, and then figuring as though counting red blood cells

It is important for the beginner to learn to recognize platelets and to distinguish them by their size (which varies but little) and by their peculiar slightly greenish hyaline appearance from granules or other foreign particles which may accidentally be present.

The count is made with the high dry lens (one-sixth inch is best) and preferably, though not necessarily, with a rather high power eye piece (No 4, for example)

If desired the platelets can be made to stand out more sharply by the addition of a stain to the diluting fluid Cresyl blue (1 500) and methyl violet (1 500) are the best. The disadvantage of the stain is that the fluid has to be made up fresh each day, as a precipitate forms on standing The addition of the stain, however, is by no means necessary

We have used citrate solution in counting blood platelets for over two years and have found that the results with it correspond closely in normal and pathologic cases with the results obtained by the Wright and Kinnicut method which we had previously used and considered the most accurate method then available

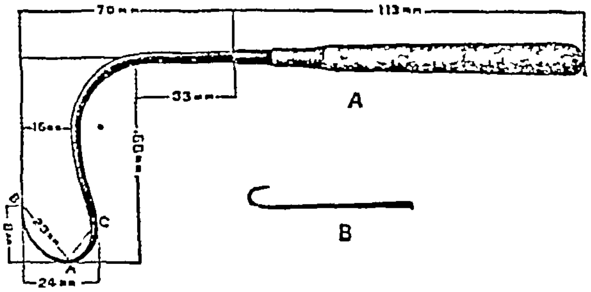
The counts in normal cases have varied from 200,000 to 400 000 The lowest counts were in cases of purpura, in three of which we obtained counts of 1,500, 10,000 and 45,000 The highest count was in a case of pernicious anemia after splenectomy, 970,000

A TONSIL SUTURE INSTRUMENT

George E Hourn, M D, St Louis

This instrument was evolved as a result of several experiences in the control of postoperative hemorrhages following tonsillectomies occurring in the practice of Drs Sauer and Burns of St Louis

With the suture needles to which we had access, there was an embarrassing difficulty in passing the needle through the posterior pillar near the base of the tonsillar fossa and then spanning the space to the anterior pillar near the base When this instrument is introduced with the axis of the handle at right angles to the plane of the posterior pharyngeal wall, there is no difficulty in transfixing the posterior pillar at any point even though the pillar projects but little above the pharyngeal wall surface Then by swinging the handle through an arc of 90 degrees, the operator can with equal facility pass the needle through the floor of the tonsillar fossa and the anterior pillar One can thus span across a space of approximately 23 mm (*A* to *B*) without putting an undue tension on the pillars while picking up the loop of the suture material from the needle with a hook. With this object in view it is important that the curve *C A B* is approximately as illustrated The arc *A C* is that of a circle with a radius of 9 mm, and the arc *A B* is that of a circle with a radius of 19 5 mm



Tonsil suture instrument *A* the instrument with measurements in millimeters *B* the hook for picking up loop of suture material

The chief advantage of the instrument is its adaptability in passing the suture material through either the posterior or the anterior pillars at any point.

In catching the loop of suture before withdrawing the needle from the pillars, there is some advantage in using a hook, the free arm of which is bent slightly to the side, away from the plane of the handle, that is, one which has very much the shape of a minnow fish hook without its barb

201 Humboldt Building

Social Welfare and the Profession in the United States.—The pioneer clinic for industrial affections, the Clinica de Lavoro at Milan has had to be taken for other purposes as the war advanced, and the public lectures delivered there have been suspended for the present. The concluding lecture by the founder and chief of the clinic, Professor Devoto, was an enthusiastic recital of what has been accomplished in the United States in the last five years in the line of protecting and caring for industrial and other workers Devoto remarked parenthetically that very few, too few, medical women in Europe devote themselves to the study of hygiene, and yet this is a particularly promising field for them. "Where in Europe," he exclaimed, "is a medical woman to be found who has done among us what Alice Hamilton has done in Chicago"

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* From the Pathological Laboratory of Mount Sinai Hospital

Military Medicine and Surgery

TRIPLE TYPHOID VACCINE (BACILLUS TYPHOSUS, B PARATYPHOSUS A, AND B PARATYPHOSUS B)

OBSERVATIONS ON THE RESULTS FOLLOWING INOCULATION OF MAN, WITH SPECIAL REFERENCE TO THE REACTIONS PRODUCED AND ANTIBODY FORMATION *

CHARLES F CRAIG, M D
Lieutenant Colonel, Medical Corps, United States Army
FORT LEAVENWORTH, KAN

The necessity for protecting our oversea troops against the paratyphoid fevers has rendered inoculation against *Bacillus paratyphosus* A and *Bacillus paratyphosus* B imperative, and the fact that these infections occur also in our own country and will undoubtedly appear, sooner or later, in our large cantonments, made it advisable that the entire army should be inoculated as a prophylactic measure The no less than wonderful results that have followed preventive inoculation against typhoid fever with the Army vaccine first prepared by Colonel Frederick F Russell have encouraged the belief that preventive inoculation against the paratyphoid fevers would also prove as successful, and from the experience gained in the prompt stopping of epidemics of these fevers among our troops both in Mexico and in Texas by the use of a vaccine composed of the two paratyphoid organisms, our hopes have been realized However, when the question arose of inoculating the entire new army with all three of the bacilli, it was realized that, from an administrative standpoint, a combined vaccine containing the three organisms would be preferable, as it would obviate a double series of injections and save much time and trouble from a military point of view The use of such a combined vaccine would be justifiable only if the results, as regards protection from typhoid and paratyphoid, were comparable to those obtained with the use of the separate vaccines, and if the reactions, both general and local, following the injections, were not so severe as to preclude the use of the combined vaccine

In order to obtain some accurate data on the question, I was requested by Colonel Russell to make a study of fifty men inoculated with the triple vaccine with special reference to the general and local reactions following its use, and the formation of agglutinins, and this contribution embodies the results of this study

The Vaccine—The triple vaccine was prepared at the Army Medical School, Washington, D C, and contains 1,000 million typhoid bacilli, 750 million paratyphoid A bacilli, and 750 million paratyphoid B bacilli per cubic centimeter The first dose is 0 5 c c and the second and third doses each 1 c c The inoculations were made subcutaneously and at intervals of seven days Agglutination tests were made on twenty-five of the fifty men inoculated, the first test being made before the first inoculation, the second before the second inoculation, the third before the third inoculation, and the fourth and fifth at intervals of seven days following the third inoculation

Material—Fifty men were selected for the observations, twenty being provisional lieutenants attending the training school at Fort Leavenworth, twenty enlisted men of the Signal Corps, and ten reserve officers belonging to the Signal Corps Reserve None of these men had been previously inoculated with typhoid or paratyphoid vaccine, none had previously suffered from typhoid fever, and all were in good health at the time of the inoculations The temperature was taken before the inoculations and twelve hours and twenty-four hours afterward Severe physical exercise was forbidden for twenty-four hours after the inoculations, and the men were excused from drill, but attended to all their other duties as usual

GENERAL REACTIONS

It may be stated that the general reactions following the use of the triple vaccine were no more severe than those that follow the use of the typhoid vaccine alone, and did not appear to be as severe as those following the paratyphoid vaccine alone This point was very carefully studied, and I have no hesitation in making the foregoing statement This result was both surprising and gratifying as, from personal experience on the Mexican border with the paratyphoid vaccine, it was expected that the combined vaccine would give a considerable degree of general reaction As stated, however, the reaction following the inoculation of the triple vaccine was no different than when the typhoid vaccine was alone used An analysis of the symptoms observed after the inoculations is of interest, and demonstrates that the general reaction following inoculations of this vaccine, in the vast majority of cases, was so slight as to be almost negligible

It may be stated here that it has been my experience that if typhoid vaccine is very carefully injected *subcutaneously*, the general as well as the local reactions are slight as compared to those observed after intramuscular injection or injection into the substance of the skin, and the severe reactions following intravenous injection are well known This point is worthy of great emphasis, for there is no doubt that most severe general and local reactions are due to careless injection of the vaccine into the muscles or skin, and what is true of the typhoid vaccine will be found to be true also of the triple vaccine In the only severe general reaction observed in this series the vaccine was apparently injected into a small vein, as the symptoms developed very promptly after the inoculation

Temperature—In the majority of cases the temperature was but slightly elevated after the inoculations, as shown in Table 1 The temperature was taken twelve hours after the inoculations and again in twenty-four hours after the inoculations From this table it will be noted that 86 per cent of those inoculated showed some rise in temperature after the second inoculation, but that only 32 per cent showed a rise after the first dose, and only 18 per cent after the third dose Had the temperature been taken at hourly intervals up to the end of twelve hours, it is probable that all of the cases would have shown some rise after the second injection, but those men that did not show any at the end of twelve hours stated that they had had no fever, so far as they were aware, so that if a rise did occur it must have been slight and transient

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* From the Department Laboratory, Central Department, U S Army

It will be noted that the majority of the men showing a rise in temperature did not go above 100 F, and that in only a few did the temperature go above 101 F, even after the second injection, when the greatest rise in the temperature occurs after the injection of the straight typhoid vaccine The one case showing a rise in temperature to 104 F followed the intravenous injection already mentioned

In almost all cases the rise in temperature was transient and had disappeared at the end of twenty-four hours, when the temperature was again taken After the first dose of the vaccine only three cases showed any rise in temperature at the end of twenty-four hours, six showed a rise after the second dose and none after the third dose All six cases showing a rise of temperature at the end of twenty-four hours after the second dose were instances of delayed reaction, which will be mentioned later

TABLE 1—TEMPERATURE FOLLOWING INJECTION OF THE TRIPLE VACCINE

Temperature F	No of Cases with Rise	Total No Injected	Percentage
After First Dose			
99 to 100	6	50	12
100 to 101	5	50	10
101 to 102	4	50	8
102 to 103	1	50	2
Total with fever after first injection	16	50	32
After Second Dose			
99 to 100	28	50	56
100 to 101	9	50	18
101 to 102	4	50	8
102 to 103	1	50	2
103 to 104	1	50	2
Total with fever after second injection	43	50	86
After Third Dose			
99 to 100	6	50	12
100 to 101	2	50	4
101 to 102	1	50	2
Total with fever after third injection	9	50	18

Headache—After the first dose of the vaccine, twenty-one of those inoculated complained of headache, sixteen stating it to be slight and four pronounced, but not severe All the others stated that they had no headache After the second dose, twenty-five or 50 per cent, stated they had headache, of which number three stated that it was severe, six moderate, and sixteen slight After the third dose only two men complained of headache, slight in character

Pain in Back—After the first dose, five of those inoculated complained of pain in the back, in the lumbar muscles, and one stated that it was severe After the second inoculation only two men mentioned this symptom, and after the third dose, none

Pain in Legs—Three of those inoculated complained of pain in both legs after the first injection, and six after the second injection These pains developed some hours after the injection, and in two instances were stated to be severe and neuralgic in character

Diarrhea—Of those inoculated, seven had diarrhea after the first dose of the vaccine and three after the second dose In only one of these persons was the symptom stated to be severe, and he had partaken of food, which was probably a partial cause of the condition

General Malaise—General malaise was noted by twenty-five men after the first injection and by thirty-six after the second injection After the third injection only three or four stated that they noted any disagreeable symptoms In the vast majority of those noting general malaise it was slight in character, most of them stating that they felt tired or as though they were developing a cold, but in eleven cases the symptoms were quite marked and in eight sufficient to keep them in bed for an hour or two of the day following the inoculations

Other Symptoms—Of other symptoms noted or spoken of by those inoculated, the following deserve mention cramps, in two cases, dizziness, in three cases, nausea, in ten cases, vomiting, in one case, chills, in one case, and polyuria in one case The man showing chills, nausea, vomiting and polyuria was the one receiving the intravenous injection, and these symptoms are almost always present following the accidental inoculation of the vaccine into a vein Nausea, always slight in character, appeared to be quite a common symptom after the second dose of this vaccine

Delayed General Reactions—While in most of the men inoculated the rise in temperature and other symptoms noted occurred within twelve hours after the dose of vaccine was received, a delayed reaction was observed in six cases, in which the rise in temperature did not occur until about twenty-four hours after the inoculation and the symptoms persisted for several hours after that period In these cases the reactions were no more severe than those observed in the usual cases, the onset of the reaction simply being delayed These delayed reactions appeared to be more numerous following the triple vaccine than after the typhoid vaccine

LOCAL REACTIONS

The local reactions following the inoculation of the triple typhoid vaccine were no more severe than those following inoculation with the typhoid vaccine alone, as judged by my experience, and may be dismissed with a few remarks The local reaction following the first dose was generally slightly less marked than that following the second, but in many instances there was practically no difference After the third dose the local reaction, in the vast majority of cases, was practically nil

Size of Areola—The size of the areola showing congestion following the first injection varied considerably but, in the majority of cases, measured from 6 to 8 cm in diameter The swelling was not marked, and in only one instance did it involve more than the area mentioned, following the first injection Following the second injection the congested areola, in a few instances, was from 1 to 2 cm larger, but in most instances no difference in size could be noted

Induration of Inoculated Area—Slight induration occurred in the inoculated area in almost every instance, but in none was it marked

Soreness—All of those inoculated spoke of soreness on pressure over the congested area in which the inoculation was received and of a sense of stiffness and slight pain on moving the inoculated arm. In none of the cases was the soreness anywhere near so marked as after smallpox vaccination, nor was there any pain in the arm at all comparable to that which often occurs after the latter vaccination.

Swelling of Axillary Glands.—Swelling and tenderness of the axillary glands on the side of the inoculation was noted in the majority of those inoculated. Thus after the first dose, twenty-five complained of soreness and enlargement of these glands; after the second dose, thirty-two presented these symptoms; but after the third dose, only six showed any swelling of the axillary glands. In none of the cases were the symptoms caused by the enlarged glands enough to cause much discomfort. An interesting point was noted in five cases in which the axillary glands of the opposite axilla were also swollen and tender.

No other local symptoms were noted in this series of fifty cases of inoculation.

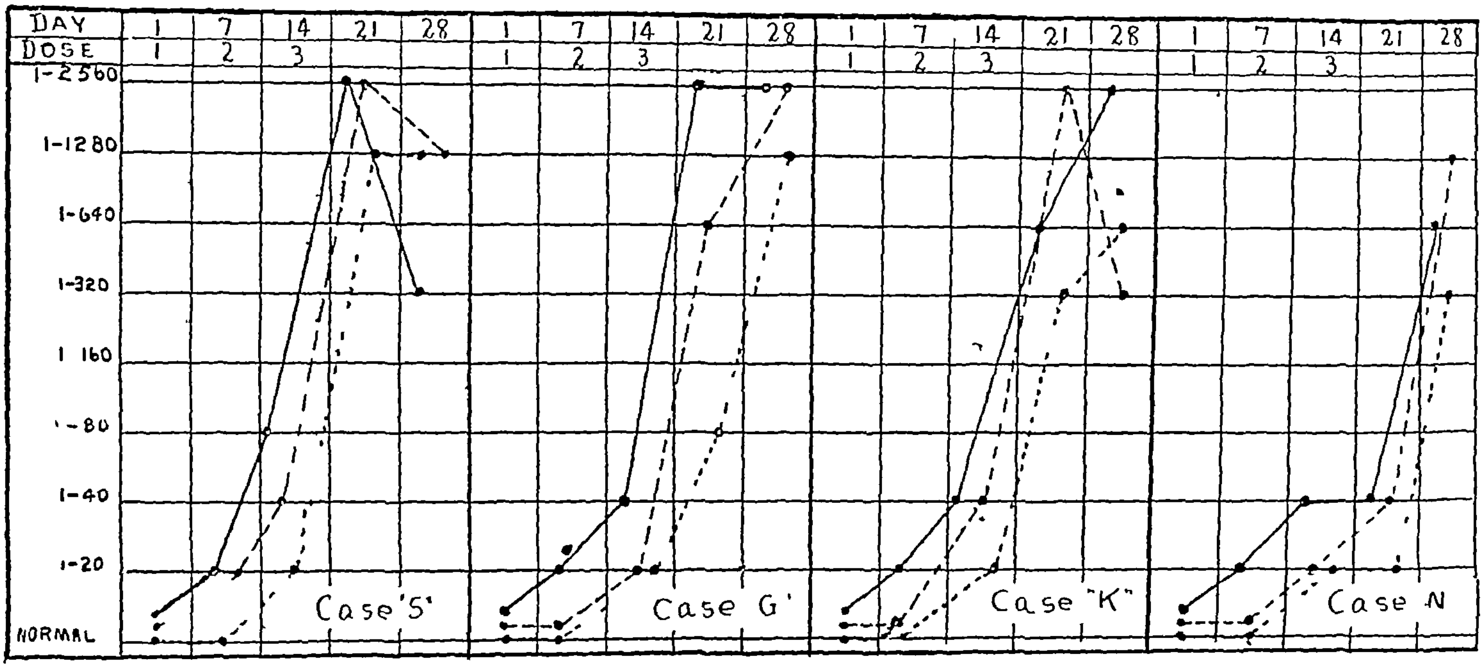
In concluding this discussion of the general and local reactions following the injection of the triple typhoid vaccine, I may say that, with the exception of the occurrence, perhaps more frequently, of slight nausea, and the delayed reactions referred to, the reactions have not differed from those that I have observed after the use of the typhoid vaccine alone, nor have either the general or local reactions been any more severe than those usually observed in the same number of persons inoculated with the typhoid vaccine. In fact, the majority of those receiving the triple vaccine did not themselves complain of any discomfort, and leading questions had to be asked in order to ascertain just what symptoms were really present. An interesting psychologic observation noted was that the young provisional lieutenants apparently noticed their symptoms, as evidenced by their speaking of them, much more than did either the enlisted men or the older reserve officers. Most of the enlisted men stated that they had no general reaction whatever, although at the time most of them were having slight fever, and, on inquiry, other symptoms could be elicited.

ANTIBODY FORMATION

No attempt has been made in this study to demonstrate the formation of other antibodies than agglutins, but as the agglutinin titer of a serum is a good index of what is occurring as regards the formation of other antibodies, it has been used to determine whether the triple typhoid vaccine gives rise to antibodies as readily as the straight typhoid vaccine.

Agglutination tests were made, as has been stated, on the day of the first dose of vaccine, before it was administered; at the end of seven days, before the second dose; at the end of fourteen days, before the third dose, and at the end of twenty-one and of twenty-eight days, making five agglutination tests in all.

As the agglutination tests are an index of antibody formation, we were especially interested in observing whether agglutinins were formed for each of the organisms in the vaccine and whether the agglutinin titer for the typhoid bacillus was influenced in any way by the combination with *B. paratyphosus* A and *B. paratyphosus* B. Charts were prepared in twenty-four cases in which the men were thus tested. The charts in all of the cases show conclusively that the combination with the paratyphoid bacilli does not interfere in the least with the production of agglutinins for *Bacillus typhosus,* and that the agglutinin titer obtained for each of the three organisms is satisfactory and indicates that the combined vaccine produces antibodies to all three organisms as well as when each is injected alone.



Agglutination titers after administration

In making the agglutination tests the macroscopic method was employed in all instances, a formalized emulsion of the respective bacilli being used, and the agglutinations being read after twenty-four hours at incubator temperature. The readings were made each week without reference to the reading of the week before, and were checked by more than one observer, in most instances.

The charts of all the cases exhibit a remarkable uniformity as regards the agglutinin titer for each of the three organisms, and the following general discussion may prove of interest.

The average agglutinin titer for *B typhosus*, after the three doses of vaccine, and at the end of the four weeks, was from 1 640 to 1 1,260, seven of the men showing the former titer and seven the latter Five men reacted as high as 1 2,560, and four showed a titer of 1 320 In one case the titer never went above 1 80, and it is interesting to know that this man gave a very severe general and local reaction

The agglutinin titer for *B paratyphosus* A gave eight positive cases in a dilution of 1 2,560, four in a 1 1,280 dilution, six in a 1 640 dilution, four in a 1 320 dilution and two in a 1 160 dilution As a whole the paratyphoid A series gave a slightly higher average agglutin titer than did the typhoid

The agglutinin titer for *B paratyphosus* B was lower than for either *B typhosus* or *B paratyphosus* A This is not in agreement with the results of some English observers who found that the titer for B was higher than for A, but it may be that the tests made at a later period would have shown a higher titer for B, as it will be noted that the response to agglutinin formation is much slower, in nearly all instances, with paratyphoid B than with either typhoid or paratyphoid A Of the paratyphoid B series, four gave a positive reaction in a dilution of 1 2,560, at the end of the four weeks, five, in a dilution of 1 1,280, four, in a dilution of 1 640, six in a dilution of 1 320, one in a dilution of 1 160, three in a dilution of 1 80, and one in a dilution of 1 40

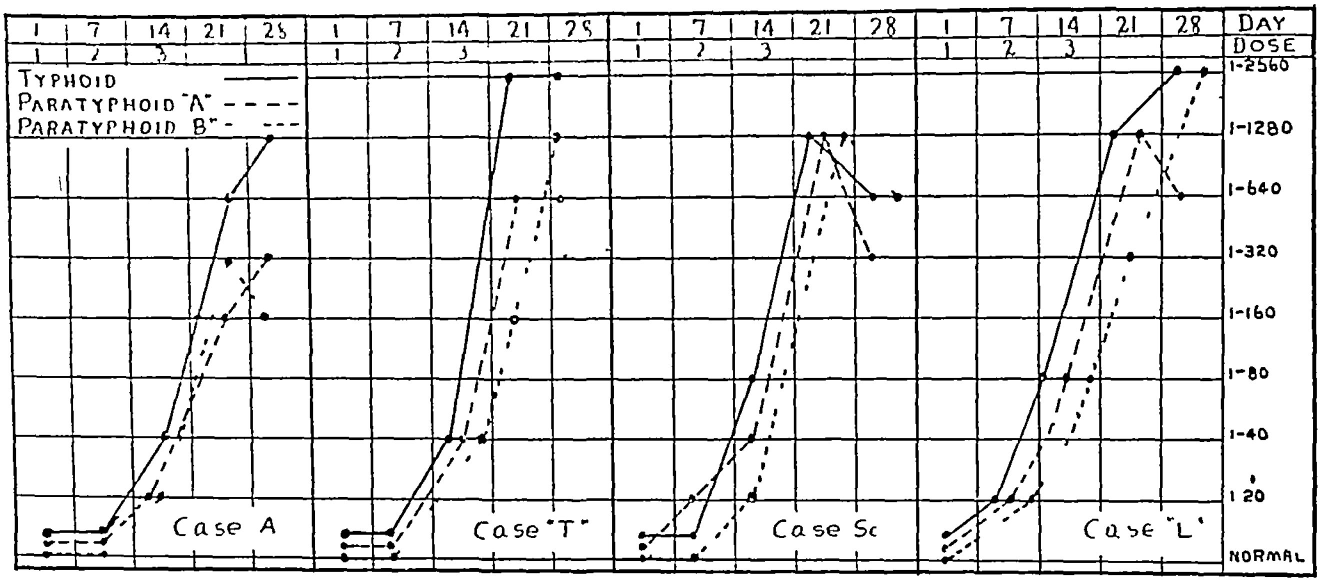
TABLE 2—AGGLUTIN TITER OF CASES OF ADMINISTRATION OF TRIPLE VACCINE

Dilution	No of Cases Typhoid	No of Cases Paratyphoid A.	No of Cases Paratyphoid B
1 2560	5	8	4
1 1280	7	4	5
1 640	7	6	4
1 320	4	4	6
1 160	0	2	1
1 80	1	0	3
1 40	0	0	1
Total	24	24	24

Table 2 illustrates the agglutinin titer for the three organisms at the end of the observation period, four weeks after the first dose of vaccine, and two weeks after the last dose

Our observations show that no agglutinin production for *B paratyphosus* B occurred until after the third injection in most instances, and that the greatest rise in agglutins occurred one week after this injection On the other hand, agglutins for *B typhosus* were demonstrable even a week after the first injection, in several instances, and the rise after the second injection, in the majority of cases, was rapid In seven instances the agglutinin curve for *B typhosus* became stationary or began to descend two weeks after the third injection of the vaccine The response to agglutin formation was also more rapid in *B paratyphosus* A than in *B paratyphosus* B

As stated, twenty-four of the inoculated men were tested as regards their agglutination curves, it was intended to test twenty-five of those receiving the vaccine, and in reality this number was selected, but one of the men was ordered away before the series was completed This officer had received his third dose of the vaccine, and his blood was tested two days afterward and found to give a positive reaction in a dilution of 1 5,120, the highest agglutin titer observed in this series At the same time his agglutin titer for *B paratyphosus* A was 1 1,280, and the same for *B paratyphosus* B



of triple typhoid vaccine.

CONCLUSION

The observations here recorded prove conclusively that the triple typhoid vaccine, with which I worked, and which is the vaccine now adopted for immunizing our entire army against typhoid and paratyphoid fevers, gives as good results in immunization, so far as can be judged by agglutinin curves, as does the typhoid vaccine alone, and that neither the general nor the local reactions following its injection are different in any degree from those occurring after the inoculation of simple typhoid vaccine The results, both from a practical and from a theoretical point of view, are all in favor of combining the three organisms in a single vaccine, and it is believed amply justify the use of the triple typhoid vaccine in immunizing our troops against typhoid and paratyphoid fevers

THE VENEREAL DISEASES

CHANCROID

(Continued from page 911)

Note—*This is the second of a series of four articles on the management of venereal diseases with special reference to military practice The first article on "The Diagnosis and Treatment of Syphilis" appeared September 15, p 907 The articles have been prepared under the direction of the Surgeon-General by the Advisory Committee on Venereal Diseases, Dr William Allen Pusey, Chicago, chairman, Dr Francis R Hagner, Washington, D C, Dr Grover W Wende, Buffalo, Dr Sigmund Pollitzer, New York, and Dr Henry H Morton, Brooklyn, with Lieut-Col F F Russell in charge of Infectious Diseases The series is published with the permission of the Surgeon-General, and will include the following Treatment of Syphilis, Chancroid, Balanitis Gangrenosa, Acute and Chronic Gonorrhea, with its complications The complete series will be issued in the form of a manual*—Ed

Chancroid, more than gonorrhea or syphilis, is a disease of the careless and dirty It is relatively uncommon among clean people It is readily prevented by prompt prophylactic treatment simple washing with soap and water after coitus greatly reduces the risk of infection with it

Diagnosis—Always in the presence of chancroid, a careful search should be made to determine whether or not there is also an infection with syphilis In a very considerable proportion of cases, there is One cannot rest safe with a diagnosis of chancroid, even when repeated examinations fail to discover the *Spirochaeta pallida* The incubation period of the chancre is from two to three weeks longer than that of the chancroid, and it may emerge only in the healing chancroid, and then escape detection Every chancroid must be regarded, therefore, as a potential case of syphilis, in addition to repeated examinations for spirochetes, Wassermann tests should be made at weekly intervals for six weeks, and the patient kept under observation for syphilis for two months

General Treatment—In order to hasten recovery, the patient with chancroid should be put to bed, kept clean, and given a nourishing diet Rest not only makes for a prompt healing of the chancroid, but greatly reduces the danger of bubo Destructive chancroids are seen in the dirty and debilitated If patients with chancroids are kept clean and well nourished, healing is usually prompt, and extensive ulceration very rarely seen

Local Treatments—Abortive Treatment In a certain proportion of cases of chancroid, abortive treatment is successful The principle of all methods of abortive treatment is to convert the infected ulcer into a sterile one by the use of some destructive agent This may be either the actual cautery, or one of several strong chemical caustics

The thermocautery is perhaps the best agent for this treatment The ulcer is thoroughly cleaned and well dried Then the entire area of it is seared with a cherry red cautery Every particle of diseased tissue must be destroyed It should be done under a general anesthetic, preferably gas

Chemical cauterization is done as follows The ulcer is well cleaned, being first irrigated and then dried Then a pledget of cotton wet with 5 to 10 per cent solution of cocain hydrochlorate or novocain is applied to it After anesthesia is produced the ulcer is dried as thoroughly as possible, preferably with blotting paper, in order to prevent the running of the chemicals subsequently to be applied After it has been thoroughly dried, the entire surface of the ulcer, both edges and base, is touched with pure liquid phenol (carbolic acid) applied on a small cotton swab, care being taken to let no infected point escape Then the excess of phenol on the surface is taken up, and nitric acid is applied lightly in the same way The ulcer should be flushed immediately with sterile water to stop the action of the acid Instead of nitric acid a saturated solution of zinc chlorid can be used This is as active a caustic as nitric acid, and its action should be stopped as quickly after application by flushing with water

After cauterization in any of these ways, the wound should be dressed with cold compresses of boric acid solution or similar bland solution There results an acute inflammatory reaction, the slough is thrown off, and in successful cases, a healthy granulating surface is left

The advantage of these methods of treatment is that, in successful cases, healing takes place quickly and the danger of bubo is almost eliminated Their success depends on thoroughness in destroying the infected area If the procedure fails to do this completely, it does less than good, because it produces a larger ulcer, which becomes infected from the focus of disease that has been left Attempts at abortive treatment with superficial caustics, such as silver nitrate, are always failures Attempts at abortive treatment should not be made unless the prospects of complete destruction of the diseased tissue are good

Abortive treatment is contraindicated under the following conditions

1 When the diseased area or areas are so extensive or so situated that the destruction produced by this treatment would result in considerable deformity The chief situation in which it is contraindicated is in chancroid at the meatus

2 When the inflammatory reaction is already intense and there is much edema These would be increased by cauterization

3 When there is inguinal adenitis This would be aggravation by cauterization

4 In healing chancroids Here the infection is already under control and nothing would be gained by cauterization

Abortive treatment will, of course, interfere with any further search for spirochetes For this reason it should never be undertaken until every reasonable effort to find the spirochetes has been made The early diagnosis of syphilis is so much more important than the prompt healing of a chancroid, that efforts to heal the chancroid should be given no consideration until the question of diagnosis is settled as far as possible And after successful abortive treatment, there should be no relaxation in the weekly Wassermann tests or in the clinical observations until syphilis can be finally ruled out

In all cases, except those favorable for abortive treatment, reliance is placed on cleanliness, the use of antiseptics, and measures to promote healing The first principle in treating chancroids is to keep them as free as possible from pus, both to promote healing

THE VENEREAL DISEASES

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SATURDAY, SEPTEMBER 22, 1917

THE OBJECTIONS TO RAW EGGS IN THE DIET

In the classic experiments on digestion in the human stomach which Dr William Beaumont conducted nearly a century ago on Alexis St Martin, the patient with a gastric fistula, it was noted that native egg white leaves the stomach very rapidly in comparison with other foods, including cooked egg white itself This observation has repeatedly been confirmed in experiments on animals, and is doubtless correct It is furthermore the presumable basis for the widespread impression that raw eggs are very easily digested, "inasmuch as they are 'chymified' in one and a half to two hours as against three for soft-boiled eggs"

Experiments conducted in vitro with raw egg white have demonstrated that this mixture of proteins is notably resistant to the digestive action of the gastric enzyme, pepsin, and likewise exhibits conspicuous antitryptic power These are properties indicating sufficient obstacles to digestion in the case of the native product to place it almost in a class by itself among albuminous substances Several years ago, Mendel and Lewis[1] of Yale University called attention in a casual way to the poor utilization of raw egg white in animals as exemplified by the diarrheas to which it can give rise In the same laboratory, Bateman[2] has made an extensive study of this phenomenon Native egg white was found to be a decidedly indigestible substance in dogs When fed in any considerable quantity it invariably caused diarrhea and sometimes induced vomiting The severity of the symptoms depended largely on the amount of material ingested, but also, to a less extent, on the individual susceptibility of the subject After the ingestion of even small amounts of native egg white, the latter could be recovered unchanged in small quantities from the stools of the experimental animals, and when the amount ingested was large, the proportion of coagulable protein in the feces was correspondingly increased Even when the feces appeared normal, undigested egg white could usually be recovered, in contrast with the fact that as a rule albumin is not found in normal feces Strangely enough, a tolerance to the raw egg white seems to be developed in the course of a few days, although prior to this an albuminuria may sometimes be detected Even after an apparent tolerance manifests itself, the utilization of the egg white protein has not been found to exceed 85 per cent

According to the report of Bateman,[3] this deportment of egg white noted in several species is by no means unknown in man He cites numerous instances to show that raw eggs may cause diarrhea and vomiting, and that the utilization of the native whites in the human alimentary tract is often found to be as low as 50 per cent All of this information may seem somewhat startling in view of the reputed prescription of raw eggs in dietotherapy and its recommendation by prominent writers in this field Without quoting the seemingly fabulous advice of Ely[4] that physicians should throw away their tonics and "lead the stomachs of their patients up to the egg-an-hour practice," we may remind our readers that the use of from six to twenty-four whites daily is still advocated in widely read texts on the therapy of tuberculosis, the advice being to employ the raw product

It should be clearly understood that although it is not difficult to find indications of the poor utilization of native egg white, so that one wonders whether such indigestible protein may not frequently reach the large intestine and become pabulum for putrefactive bacteria, the same criticism does not apply to the cooked product Heating to 70 C (158 F) removes the partial indigestibility and puts egg white into the category of readily assimilable nutrient Acids and bases likewise can effect a change in the same direction The resistant properties of the egg white appear to be associated with the albumin fraction The effect is not peculiar to the egg of the common fowl, since it has likewise been observed after feeding uncooked egg white from the egg of the duck In contrast to egg white, egg yolk appears to be well digested and utilized

Various considerations now make the popular advocacy of raw eggs seem inadvisable Bateman[3] has summarized the problem as follows "A substance which fails to stimulate a flow of gastric juice and is antipeptic, which hurries from the stomach, calls forth no flow of bile, and strongly resists the action of trypsin, which is poorly utilized and may cause diarrhea, has evidently little to recommend it as a foodstuff of preference for the sound person, let alone for the invalid And when the native protein needs only to be coagulated at [illegible] C in order to obviate almost all [illegible] rs to be still less [illegible] ts [illegible] the [illegible]

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According to the report of Bateman,[3] this deportment of egg white noted in several species is by no means unknown in man He cites numerous instances to show that raw eggs may cause diarrhea and vomiting, and that the utilization of the native whites in the human alimentary tract is often found to be as low as 50 per cent All of this information may seem somewhat startling in view of the reputed prescription of raw eggs in dietotherapy and its recommendation by prominent writers in this field Without quoting the seemingly fabulous advice of Ely[4] that physicians should throw away their tonics and "lead the stomachs of their patients up to the egg-an-hour practice," we may remind our readers that the use of from six to twenty-four whites daily is still advocated in widely read texts on the therapy of tuberculosis, the advice being to employ the raw product

It should be clearly understood that although it is not difficult to find indications of the poor utilization of native egg white, so that one wonders whether such indigestible protein may not frequently reach the large intestine and become pabulum for putrefactive bacteria, the same criticism does not apply to the cooked product Heating to 70 C (158 F) removes the partial indigestibility and puts egg white into the category of readily assimilable nutrient Acids and bases likewise can effect a change in the same direction The resistant properties of the egg white appear to be associated with the albumin fraction The effect is not peculiar to the egg of the common fowl, since it has likewise been observed after feeding uncooked egg white from the egg of the duck In contrast to egg white, egg yolk appears to be well digested and utilized

Various considerations now make the popular advocacy of raw eggs seem inadvisable Bateman[3] has summarized the problem as follows "A substance which fails to stimulate a flow of gastric juice and is antipeptic, which hurries from the stomach, calls forth no flow of bile, and strongly resists the action of trypsin, which is poorly utilized and may cause diarrhea, has evidently little to recommend it as a foodstuff of preference for the sound person, let alone for the invalid And when the native protein needs only to be coagulated at 70 C in order to obviate almost all the effects mentioned, there appears to be still less reason for using it uncooked." This does not mean, of course, that raw egg is toxic in the correct sense of the word. The reputed relation of excess of egg white to renal damage and the frequent occurrence of hypersensitiveness to its proteins offer additional reasons for debating the wisdom of a liberal use of raw eggs.

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[1] Mendel, L B, and Lewis, R C Rate of Elimination of Nitrogen as Influenced by Diet Factors, Jour Biol Chem , 1913, **16**, 55

[2] Bateman, W G The Digestibility and Utilization of Egg Proteins, Jour Biol Chem , 1916, **26**, 263

[3] Bateman, W G The Use of Raw Eggs in Practical Dietetics Am Jour Med Sc , 1917, **153**, 841

[4] Ely The Fable of the Egg, New York Med Jour , 1903, **78**, 928

EVERY DAY IS FISH DAY

In the search for new or little appreciated sources of palatable foods to meet the shortage that the war has brought to the entire civilized world, some consideration has already been given to fish. From a physiologic or nutritional standpoint, this type of animal food commends itself on account of its comparative richness in precisely those nutrients — proteins and fats — which at present command the highest prices. The fact that no special feeding or nurture is required to produce the common fish of our markets puts them into striking contrast, from an economic standpoint, to the various types of meat that are obtained as the result of the prolonged feeding of animals originally valued at a liberal price, through a period of growth and the process of finishing for the market. The cod, the mackerel and the shad, for example, require no management comparable to the methods of animal production in farm practice. The essential features of expense lie in the capture and marketing of the food.

Beef contains from 2 to 3 ounces (from 60 to 90 gm.) of protein per pound, fresh fish, such as cod, haddock, halibut, mackerel, perch, salmon and shad, furnish from 1½ to 2½ ounces, while the commoner dried fish contain as much as 3 ounces. From the standpoint of cost, on the other hand, 25 cents will purchase about as many calories of energy, and far more protein, when expended for salted cod at 15 cents a pound, and decidedly more nutrients when expended for smoked herring at 16 cents a pound, than can be obtained in the form of medium fat beef at 35 cents a pound. Admittedly it is not always justifiable to compare foods on the basis of price and calories alone, for there is a quality as well as a quantity factor involved. But with fish and other forms of flesh, the chemical features of the tissues are far more nearly alike than would be the case in a comparison of, let us say, corn meal and beef. For, after all, muscular tissue is chemically much the same in the vertebrate animals, the chief variations being in the unlike content of water or of fat.

Professor Ward[1] of the University of Illinois has pointed out that an entirely unjustified prejudice, or rather a series of prejudices, has stood in the way of the more widespread use of fish as food. In commending the new slogan, "Every day is fish day," Ward indicates the serious objection to the custom of purchasing fish only on Friday. The work of the fisherman, he rightly says, covers more than a single day in the week, and to be efficient from the economic standpoint and satisfactory for the public, the fish business should be encouraged by the distribution of the demand over a larger part of the time.

The food purchasers of this country are losing valuable opportunities to extend the variety of edible products in this period of stress through an ignorance of the advantages or possibilities offered by some of the little used fishes. The prejudices engendered through ignorance or tradition in turn limit the satisfactory development of the fish-producing and fish-distributing industries. Even inland the opportunities are not so limited as is commonly supposed, so that a more liberal use of fish is not necessarily restricted to the regions bordering on the coast line of this country.[2] As instances of such neglected nutrient products Ward mentions the burbot, a fresh-water fish belonging to the cod family, which is sufficiently palatable to be regarded as a delicacy in continental Europe. The bowfin is a Mississippi basin fish that yields a smoked and salted product of satisfactory flavor. The carp, which is caught far inland, likewise has acquired an undeserved prejudice. Among ocean fish the tilefish and the sable-fish are destined to come into popular favor, while the rapidly increased demand for the grayfish, a new candidate for recognition in this country, though long used along the Mediterranean, suggests something in the nature of psychologic popularity promoted by the familiarity with whitefish and bluefish.

If butter substitutes can become popular despite the prejudice that was long created and maintained against them, if other cereals can win their way as competitors of wheat for popular favor in human nutrition, surely widespread reminders of the value of fish can and ought to create a demand for these wholesome products even in cases of little recognized merit. Strange names have not militated against many other novelties that have become household words. As Ward says, most families plan for fish once a week or less frequently, if they do not find just what they want available, they are apt to pass by, and meat is substituted. Thus for one cause or another the average fish consumption in the interior portion of the country falls far below that which obtains in the Old World, or that which should exist here when our extensive and splendid supply of fish food is taken into account. Fish are worthy of a more prominent place in the dietary despite the fact that they are not the unique "brain food" that an antiquated fancy would have them be, and despite the unsupported belief that they are concerned in the transmission of cancer. Like other perishable products they are liable to objectionable decay, but this is not an insurmountable obstacle with present methods of food hygiene and practical conservation. Hence we accept the slogan, "Every day is fish day."

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[1] Ward, H. B.: The Housewife and the Fish Problem, Jour. Home Economics, 1917, 9, 369.

[2] The Bureau of Fisheries has recently published a series of economic circulars for the purpose of educating the public on the value of various fish and the best methods for preparing each kind.

THE SIGNIFICANCE OF CREATINURIA

Although creatin cannot be called a normal constituent of the urine in the same sense in which the invariably occurring creatinin, urea or uric acid are so designated, it is nevertheless found under circumstances that are strictly physiologic in character. Creatin is present only occasionally and in small quantity in the urine of adult men. It occurs in the urine of women post partum, and is usually present in the urine of children in which it may be equivalent in amount to a considerable portion of the closely related creatinin. In disease, particularly such types as are attended with partial starvation, creatin is also likely to make its appearance in the kidney output.

The explanation of the origin of this unquestionably important product of metabolism has remained a puzzle for many years. Nothing is known of the function of the creatin in the muscle and other organs, and it cannot be stated even yet whether creatin is a waste product or a substance that plays some direct regulatory or constructive part in the workings of the tissues. Quite as undetermined is the meaning of the excretion of creatin under what apparently are very special physiologic conditions. Hypotheses have not been wanting.[1] Thus, Mendel and Rose, among others, have suggested as a result of their experiments on starving subjects that creatinuria is in some way closely connected with the metabolism of carbohydrates. The excretion can often be repressed by liberal feeding of sugar. The occurrence of creatin in the urine of diabetics has tended to substantiate this theory. McCollum and Steenbock have obtained results which point to a connection between creatinuria and protein metabolism. Recently Underhill has suggested the possible connection between creatinuria and acidosis.

The investigations of Denis[2] at the Massachusetts General Hospital tend to lend additional weight to the alleged intimate relation between creatin excretion and protein intake. As Denis points out, the conditions under which creatin excretion has been noted in man, namely, in starvation, in childhood, in pregnancy, in fevers, and in hyperthyroid disease, are all conditions accompanied by a high level of protein metabolism. The observations of Krause that small quantities of creatin are frequently found in the urine of women may also possibly be attributed to the relatively high protein intake of women when considered from the standpoint of their muscular development.

It has been noticed that creatin sometimes occurs in the urine in cases of hyperthyroidism. Such patients often exhibit an insatiable appetite. Denis has now collected results in five cases of exophthalmic goiter in which it is shown that the amount of creatin excreted by these individuals is dependent on the intake of protein, being increased by high protein feeding and decreased or even eliminated by low protein feeding. Comparable results have now been obtained for children, in whom it is shown that the amount of creatin found in the urine is directly dependent on the intake of protein, being high when large quantities of protein (creatin-free) are ingested, decreasing and in some cases disappearing entirely when the child is fed on a diet of an extremely low protein content. As a working hypothesis it has been suggested that on the ingestion of protein some fraction of this is transformed into creatin, transported to the muscles, and there absorbed. If so much creatin is manufactured that the muscles become supersaturated, creatin is excreted by way of the kidney. What would constitute supersaturation would depend not only on the total mass of muscle, but also on the capacity for creatin absorption possessed by the muscles. Creatinuria in normal children is therefore due, the Boston investigators venture to assert, to the relatively high protein intake which is the rule with practically all children; that it may also be due to the low saturation point of immature muscle is suggested by the small creatin content of the muscles of children and by the relatively low level of protein consumption at which appreciable quantities of creatin are excreted. In the light of such intimations it is not impossible that the elimination of creatin, in contrast with creatinin, may in ultimate analysis furnish some physiologic index to the quantitative need of protein at various ages and in various conditions of well-being.

THE USE OF VOLATILE IRRITANTS IN COLLAPSE

Any one who has followed the results of the modern scientific study of drugs which have long had a place in empiric medicine must have been impressed with many unanticipated disillusionments. The alleged remedial virtues of more than one widely heralded "vegetable remedy" have persistently avoided the inquiring search of the unbiased therapeutic investigator. Alcohol, long vaunted in its various guises as a prince among stimulants, has been forced to accept the demonstrated rôle of a depressant. Alleged antiseptic washes have proved to retain essentially the hygienic value of cleansing water. The searchlight of truth has no respect for traditions, alone.

These lines are inspired by a timely investigation of the effects of volatile irritants which are among the substances in common use to combat conditions of threatened or actual circulatory failure[1] It has truly been said that the clinical use of the so-called circulatory stimulants such as the volatile substances of a highly irritant nature which are given by subcutaneous or intramuscular injection in shock or allied conditions, is based, not on exact experimental observation, but on casual bedside impression and tradition It is conceivable that they may act directly on the circulation, or they may provoke a reflex action as a result of the intense irritation of sensory nerve endings which is well known to lead to rise in blood pressure

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[1] Some of these are summarized by Denis, W., and Kramer, J. G.: The Influence of Protein Intake on Creatine Excretion in Children, Jour. Biol. Chem., 1917, **30**, 189, from which those mentioned above are quoted.

[2] Denis, W.: The Influence of the Protein Intake on the Excretion of Creatine in Man, Jour. Biol. Chem., 1917, **30**, 47. Denis, W., and Kramer, J. G.: The Influence of Protein Intake on Creatine Excretion in Children, ibid., p. 189.

At the Department of Pharmacology in the College of Physicians and Surgeons, New York, Lieb and Herrick[1] have watched the effects of injections of alcohol ether, camphor and ether, camphor and oil, and turpentine in animals decerebrated so that the pain factor would be entirely excluded When these irritants were introduced directly into the blood stream no direct action on the circulation other than threatened or actual collapse could be observed Injections at various regions of the skin provoked a reflex rise in blood pressure The sensibility of the sites varied in accord with earlier observations on the comparative sensibility of various parts of the body surface, in the following tested order (1) the nasal septum, (2) pads of the feet, (3) pads of the hands, and (4) the general body surface The duration of the response was brief at best, usually less than fifteen minutes, and often so transient that only a few seconds were involved Any measure which destroyed or profoundly depressed the function of any part of the reflex arc involved prevented any blood pressure raising effect from the subcutaneous injection of the volatile irritants The investigators, therefore, cannot escape the conviction that the transitory rise in pressure which these medicaments produce is entirely reflex in character The heart plays little or no part in the process, the response being effected through the vasomotor apparatus

It seems impossible to overlook the bearing of such carefully controlled observations on the use of camphor in oil, alcohol, and allied irritants in clinical routine They may find a place in cases in which, as the New York pharmacologists express it, with cutaneous sensibility present and reflex irritability preserved, an irritant injection may rouse flagging energies for a *momentary emergency* Yet *in conditions* of abolished reflex irritability, as in anesthesia and shock, the effect is nullified, and in conditions of hemorrhage with falling blood pressure the irritants are of little avail The possibility of actually inducing shock by the traumatism of the injections should not be lost sight of For the clinician we must therefore commend a careful consideration of these statements of Lieb and Herrick In circulatory deficiencies, the result of traumatic or toxic insult to the central nervous system, an irritant injection may fairly be called an added burden and may well accelerate oncoming shock It is a two edged sword and may be an instrument of collapse The use of such a measure to stimulate an anesthetized or profoundly prostrated or unconscious patient has no experimental justification This places a serious burden of proof on the clinical enthusiast

Current Comment

A BRITISH COMMITTEE OF INQUIRY

August 3 the Central Medical War Committee, which acts as an advisory body to the English government on medical matters connected with the war, addressed a note to the Secretary of State for War informing him that in its opinion no more medical men could be called on to take commissions in the Royal Army Medical Corps without seriously endangering the supply of physicians for the treatment of the civil community, and that further depletion would only be effected on the responsibility of the government after carefully comparing the military with the civil needs Following this a series of questions were addressed to the War Office and the House of Commons by a member of the latter in which it was alleged that the number of medical officers claimed by the military authorities for use abroad and at home was in excess of actual requirements Our readers may remember that some time ago we published a rather long abstract of a report on conditions medical in France by Lord Charnwood This, if we mistake not, was supposed to be an exhaustive report and one that would satisfy those who were criticizing the British medical military administration This, however, does not appear to have been the case A Committee of Inquiry into the Army Medical Service has been constituted, and has gone to France

It has been directed to inquire into various matters connected with the personnel and administration of the Army Medical Service in France, and afterward to carry out similar investigations in the United Kingdom The committee consists[1] of a general officer who has held many important military commands in peace and war, Sir Francis Howard, and the secretary,

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[1] Lieb C. C and Herrick W W The Reflex Action of Volatile Irritants on the Circulation Arch Int. Med May 1917 p 811

[1] The Committee of Inquiry is composed of the following members Major General Sir Francis Howard K. C B K. C M G (chairman) Sir Rickman John Godlee Bt. K.C V O Sir Frederick Taylor Bt Sir William Watson Cheyne Bt. K.C M G C.B M P Lieut Col H J Stiles *M B C.M F R.C S Dr Charles* Buttar Dr Norman Walker and Dr J B Christopherson F R.C.S F R.C.P (secretary) Sir Francis Howard, who distinguished himself in the Sudan campaign of 1898 and during the South African war was *Commander in Chief* of the Western Command in 1905 7 and *Inspector of Infantry 1914 15* Sir Rickman Godlee Sir Frederick Taylor and Dr Buttar are members of the Central Medical War Committee the last named being Chairman of its Executive Committee Sir Watson Cheyne who is a consulting surgeon R.N as well as M P *for the Universities* of Edinburgh and St. Andrews is a member of the Reference Committee of the Royal Colleges in England as are also Sir Rickman Godlee and Sir Frederick Taylor Dr Norman Walker is convener of the Scottish Medical Service Emergency Committee. Lieut. Colonel Harold J Stiles is the well known Edinburgh surgeon who in addition to other war work is Deputy *Inspector of Military* Orthopedics (for Scotland) Dr Christopherson the secretary saw service during the South African war and is Director of the Khartoum and Omdurman Civil General Hospitals

Dr Christopherson, well known for research work and as an administrator in the Sudan Of the six medical members, five are members of one or more of the committees which act in an advisory capacity to the Army Medical Department, the Central Medical War Committee, the Committee of Reference of the Royal Colleges in England, and the Scottish Medical Service Emergency Committee There is no doubt that this committee will secure much information of value to the British government and to its allies

"O WAD SOME POWER "

This pertinent comment and well deserved criticism appeared in a recent issue of the *New York Medical Journal*

> The logic of the advertiser, particularly a certain sort of advertiser, is indeed weird In an advertisement of a health (?) food in the *American Review of Reviews* for August we find a testimonial from Arnold Bennett, as follows "The tonic effect of —————— is simply *wonderful!*" The advertiser then goes on coolly to say, "In the face of such unparalleled proof, etc."

And turning listlessly through the advertising pages of the same issue of the *New York Medical Journal* we select, from many of the same type, an advertisement of "Ammonol, The Stimulant, *Ethical* Antipyretic and Analgesic" There we learn, in part, that this very ordinary mixture of acetanilid, ammonium carbonate and baking soda "is a specific in Fevers, Neuralgia, Atonic Dyspepsia, Pneumonia, Gastralgia, Bronchitis, Coryza, Catarrhal Influenza, La Grippe, Rheumatism, Hysteria, Alcoholism, Amenorrhea, Dysmenorrhea, Uterine and Intestinal Colic, Obstinate Vomiting, Catarrh of the Bile Ducts and Jaundice" Then we appreciated that, as the *New York Medical Journal* said, "the logic of the advertiser, particularly a certain sort of advertiser, is indeed weird" We would also hazard that the logic of certain editorial writers — possibly it would be more correct to say publishers — is also weird Or is it possible that our contemporary obeys the injunction, Let not thine editorial right hand know what thine advertising left hand doeth?

THE LIE WITH CIRCUMSTANCE

> "The Commissioner of Health directs me to call to your attention the enclosed advertisement issued by T B Wheeler M D, Company, Montreal, Canada, in which the name of the Association's Journal is being used"

Accompanying this brief note to The Journal from the secretary of Dr Haven Emerson, Commissioner of the Department of Health of the City of New York, was a four page leaflet devoted to the exploitation of "Wheeler's Tissue Phosphates" The trend of the circular is to lead the average reader to infer that The Journal of the American Medical Association has endorsed Wheeler's Tissue Phosphates For example, in describing the preparation one reads

> "It embodies the best recent scientific opinion concerning the treatment of the disease (tuberculosis) as stated by the official Journal A M A."

Elsewhere in the circular The Journal's criticisms of the hypophosphites and the glycerophosphates (proprietary preparations which are competitors of the Wheeler product) are quoted and twisted into a tribute to the ingredients of Wheeler's Tissue Phosphates Garbling quotations, *distorting statements*, separating phrases from their contexts and omitting qualifying clauses, all for the purpose of making out a case for some proprietary remedy is a trick as old as quackery itself That it should be used in advertising Wheeler's Tissue Phosphates is entirely fitting Obviously, the T B Wheeler, M D, Company esteems the opinion of The Journal on pharmacologic matters This being the case, it should, in the interest of truth and scientific accuracy, publish in its advertising circulars just what The Journal has said about Wheeler's Tissue Phosphates It could not do this better than by quoting from a recent editorial note which commented on a report of the Chemical Laboratory on this preparation[1] Here is part of The Journal's comment

> "'Wheeler's Tissue Phosphates' is an unscientific shotgun mixture whose most active and powerful drug is the alcohol it contains That it was not years ago relegated to the realms of obsolete and discarded preparations is a commentary alike on the lack of scientific discrimination and on the power of advertising"

Here we have "Wheeler's Tissue Phosphates" stripped of the verbal camouflage with which its exploiters have invested it

AMERICA—THE MEDICAL MILITARY UTOPIA

Under the heading "Medical Activity in America," the *Medical Press and Circular* comments

> The rapid strides that medical organization has taken in the few months since the declaration of war, are a source of wonder to the slower moving bodies on this side of the Atlantic 'Sinapis,' in a leader of some weeks ago, alluded to the absolute necessity of having medical representation in Parliament if organized medical effort is ever to be effective here In hoping that we may be able soon to thank fortuitous circumstance for such a blessing, we symbolize the nature of our progress under tradition-bound administration In the States, the lessons of the Spanish-American war were not forgotten, and the inclusion of numerous medical men in the highest war councils was the first step toward an almost magical transformation in medical circles that has become a reality, even though immense distances and scattered cities militated against easy organization These results are seen in every American medical journal that reaches us Base hospitals in large numbers have arrived at the Front, many thousands of surgeons and physicians have gone to France secure in the knowledge that all has been done by the State to safeguard their interests in every way Not only have the medical rank and file been mobilized and prepared, but the governing provisional councils have laid out a program which includes a most detailed preparation for the medical requirements of a great army, from provision as to hastening medical graduation, to the establishment of special colleges for the immediate education of nurses, and of all who can possibly be trained to lighten the work thrown upon the men who are left behind And all this has taken place without a hitch, while here, whole countrysides are deprived of medical aid, while the powers that be content themselves with a policy of steady negation without the saving clause of an alternative method

"And all this has taken place without a hitch" Who could believe it? Apparently it is necessary to go abroad to find out what is going on at home. We thought that The Journal was keeping up, now we see that it is hopelessly behind and we despair of ever catching up with the speedy progress outlined by our British contemporary.

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[1] Wheeler's Tissue Phosphates, The Journal A M A., May 5, 1917, p 1337

GERMANY AND SURGICAL PROGRESS

Many years ago the late Dr. Nicholas Senn said that America led the world in surgical achievement. We have been led to believe by others that Germany was the fountain head of surgical knowledge and the source of all scientific wisdom. Sir Berkeley Moynihan is inclined to disagree so far as Germany is concerned. In a recent article[1] he asks:

> "What then has been Germany's part in all the astounding progress of modern surgery? It has been the same in surgery as in every other science. Almost all fundamental discoveries in science, Dugald Clark tells us, have originated in England, France and Italy. In capacity for original thought the German mind is lacking. The brilliant and happy inspiration, the penetrating insight, the new vision are things for which we seek almost in vain in all German scientific literature. The fertile new thought giving a fructifying impulse to the work of others is rarely indeed of German origin. The German mind is of quite a different order. It is avaricious, industrious, methodical; it collects, if it does not accurately appraise, the work of others. It tabulates and registers and explains; it furnishes an intricate analysis, and illustrates by copious reference any subject with which it may deal. The new idea, originating almost always elsewhere, is given eager hospitality, is dissected and discussed at inordinate length, it may be put into practice with various alterations of technical procedure, and before long is claimed as a home product."

For this act of intellectual dishonesty Sir Berkeley Moynihan would not blame many of the German writers, although a study of the literature of almost any subject in medicine, chosen at random, will show the amazing infrequency of any reference to English or American literature, and very few indeed to the French.

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[1] The Institutes of Surgery, Brit. Med. Jour., Aug. 11, 1917, p. 171.

Physiologic Observations on Body Temperature.—The temperature of the human body is not constant, but is known to exhibit a distinct cycle during the twenty-four hours, the maximum appearing between 4 p. m. and 8 p. m., and the minimum between 2 a. m. and 6 a. m. The difference, although the actual maxima and minima are not the same in different persons, may be said to be between 1 and 2 degrees F. The natural explanation of this cycle is that it reflects the diurnal variations of bodily combustion, in particular that going on in the muscles, and this surmise is borne out by numerous observations, such as those of Simpson and Johannsson to the effect that absolute muscular rest in the fasting condition greatly reduces the amplitude of the daily variation. Gibson, Osborne and Simpson have also shown that the temperature cycle conforms to local time, that is to say, if a person's day maximum has been found to occur at 6 p. m. (New York time) in New York, it still occurs at 6 p. m. (Greenwich time) when he comes to Glasgow, and not at 1 p. m., as it should were the rhythm independent of bodily activities. It ought, therefore, to follow that the temperature cycle in a man who works at night and sleeps by day is reversed, the maximum appearing in the early morning and the minimum in the early evening. Some observers, such as Jaeger, who reported on army bakers, claimed that the expected reversal really occurred, but their methods were inexact, and the careful observations of Benedict led to the conclusion that the curve was modified, but not reversed.—Report of British Health of Munition Workers Committee, July, 1917.

Medical Mobilization and the War

EXEMPTION OF MEDICAL STUDENTS AND INTERNS

Regulations Concerning Procedure

Additional methods of procedure for carrying out the regulations prescribed by the President for exempting medical students and hospital interns (The Journal, Sept. 8, 1917, page 830, also, Sept. 15, 1917, page 917) have just been issued by the Surgeon-General's Office.

APPLICATION OF INTERN OR STUDENT NOT CALLED

Interns and students who shall not have been called by a local board may enlist in the Medical Enlisted Reserve Corps, such enlistment entitling them to discharge from draft if thereafter called.

An application for enlistment under this paragraph must be forwarded to the Surgeon-General with the affidavit of the applicant supported by the certificates of his school authorities showing his present status as intern or student, and particularly how long he has been an intern in the one case, or the year of the medical course that he is pursuing in the other.

INTERNSHIP LIMITED TO ONE YEAR

An intern who has served one year or more as such will not be enlisted in the Medical Enlisted Reserve Corps under this regulation.

MAY ENLIST LATER IN MEDICAL RESERVE CORPS

An intern who is enlisted in the Medical Enlisted Reserve Corps hereunder will be called into active service under his enlistment if his services are needed, at the end of one year of internship. Applications for commission in the Medical Reserve Corps, from interns who at the expiration of one year's internship are called for duty as members of the Medical Enlisted Reserve Corps, or from interns whose year of internship is about to expire, will receive proper consideration.

MEDICAL STUDENT MUST COMPLETE COURSE

A medical student (undergraduate) who is enlisted in the Medical Enlisted Reserve Corps hereunder will be called into active service under his enlistment, if his services are needed on failing to pass from one class to another, or on failing to graduate.

THOSE CALLED BY DRAFT BOARD

Interns and students who shall have been called for service by a local board under the selective draft law, may be discharged from the draft, on condition that they shall enlist in the Medical Enlisted Reserve Corps.

CALL TO ACTIVE DUTY

It will be the policy of the Surgeon-General as a rule to recommend discharge from the draft on the condition indicated, the discharge to be followed by a call to active duty under the enlistment in the Medical Enlisted Reserve Corps at the expiration of a complete year of internship or on the failure of the student (undergraduate) to pass to the next higher class or to graduate.

REPORTS OF STATUS NECESSARY

Interns and students who are enlisted in the Medical Enlisted Reserve Corps by virtue of these regulations, and are not called into active service under such enlistments, are required to report their status to the Surgeon-General as follows:

Interns, at the end of each three months' period, such report to show the total amount of internship since graduation and to be countersigned and attested by the medical superintendent of the hospital.

Students, at the end of each semester, such reports to show whether the students qualified for advancement, and to be countersigned by the deans of their respective schools or by subordinate officers representing the deans.

RECOGNIZED INTERNSHIPS

In the execution of these regulations the department will not recognize internships in hospitals, sanatoriums or other institutions conducted for profit, or in small private hospitals (fifty beds or less), or new internships established or added since May 18, 1917, to those previously existing, at any hospital excepting such as may have been newly established and added by reason of a proportional increase in the bed capacity of such hospital, nor will it recognize internships in the case of any graduate appointed thereto later than August 1 following his graduation.

NEWS OF THE TRAINING CAMPS

At Fort Benjamin Harrison

Changes continue the rule in almost every company of the training camp Two of the companies have lost two of their four instructors, while two others have lost their entire instructing staff, the officers concerned being in every instance recalled to their National Guard units There have been two new companies formed, and one of the original companies has been split up and distributed among the others The total number of student officers, including those attached to detached units, is 1,203

PISTOL PRACTICE

Pistol practice has now been indulged in by all the older companies The story is current among medical circles in the Army that permission to use the range in the past has been denied the medical brethren because general anxiety was felt lest their marksmanship should grow to exceed their professional skill and render them dangerous rivals to their fellow officers of the line This makes a good story, but it would hardly seem justified in point of fact, if we are to judge from the majority of the scores registered in the recent trials A great deal of credit, however, must be given to those officers who through incessant patience and vigilance were able to carry the trials through without the occurrence of any untoward incident.

EQUITATION

Equitation continues to absorb the attention of those of the companies which have been fortunate enough to reach that part of the camp schedule It is surprising to learn how many of the men have never ridden a horse before, but it must be gratifying to Major Snyder under the circumstances to see how well these initiates manage to stick on From all accounts the instruction is highly practical, to say the least of it.

LECTURES

An illustrated lecture was given during the early part of the week of September 9, on the subject of "Typhus in Serbia," by Lieutenant Mitchell, who was sent out under the auspices of the American Red Cross after the preventive measures instituted by the American commission had accomplished their end His description of the enormously high incidence of the disease at the height of the epidemic was startling and went far to emphasize the acknowledged achievements of Dr Strong and his associates

One of the instruction companies had the privilege of listening to a splendid address by M Jean Alcide Picard of the French Quartermaster Corps, formerly a lieutenant of infantry at Verdun, on the subject of pro-German propaganda His suggestions for the suppression of propagandists were interesting, especially in that they showed how great an importance is attached to this phase of enemy activity by our transatlantic allies M Picard is at present traveling under the auspices of the Young Men's Christian Association, and spends all his time addressing troops in the various camps and cantonments

A description of the Albee technic for bone-graft surgery was read to the student officers, followed by a moving-picture reel illustrating a transplant of bone from the tibia to a fractured humerus

PERSONAL

Capt Russell M Wilder, assistant adjutant, is still absent on leave, but is expected to return shortly

Lieut-Cols van Pool and Shockley have been assigned to duty at the training camp as instructors

Capts E B Moss and Trautman and Lieutenants Burt, Cromwell, Mead, Ross, Boyle, Lewis, Hayes, R Ballantyne and Martin have been relieved of duty as instructors and ordered to rejoin their respective commands

Major C Frothingham, M R C, has been appointed instructor of Company 11, and is to be assisted by Lieuts A Bowen and E W Phillips

Lieut M C James has been appointed instructor of Company 8, to replace the officers ordered away

COMPANY NEWS

Company 2 has been so depleted by assignments of its members to detached commands that the remnants were scattered on Saturday, September 15, and distributed between the various other companies On Saturday night the remaining members gave a farewell dinner in honor of Major Baehr, the company instructor, at the Hotel Severin, Indianapolis

Companies 4 and 7 bivouacked together one night last week on the estate of Capt F Hutchins Their example was followed later by Companies 1 and 5 The camp was named Camp Scott in honor of Colonel Scott, who planned and led the expeditions

Company 8 was given a lecture and practical demonstration of the method of erecting a field hospital by Major Creighton last week This exercise proved most instructive

At Fort Oglethorpe

Doctors, short and tall, thin and stout, old and young, optimists and pessimists, a conglomerate mass, 1,200 of them, down here to do their bit and incidentally to get a new grip on life they go at things with an avidity that is suprising They all realize that this is the opportunity of their lives to give abused bodies and minds a new lease on life The majority are wofully "out of whack" Sedentary life has put some of them in the invalid class but few are so far gone that they have "cut their bridges behind them" What a jolt they get when they are informed right at the beginning of the course of instruction that their new duties will be 95 per cent military and 5 per cent medical! They are here to receive orders and not to give them and this makes them feel that "the worm has turned"

At 5 45 a m the recruit is routed out of bed to go through a series of setting-up exercises He strips of all superfluous clothing and for twenty minutes he squats, bends, twists, squirms, crawls, hops, jumps till he cries enough During this period the enthusiasm is unbounded and the recruit returns to the barracks rejuvenated and with a feeling of well being that he had not known was possible A month of this work does wonders Protuberant abdomens disappear, and the protuberance appears higher up between the shoulders Stiffness gives way to elasticity, and coordination takes the place of awkwardness The doctor undergoes a metamorphosis so that his patients would not recognize him One prominent physician from Philadelphia lost 25 pounds in weight, reduced his waist measure 9 inches and improved his general appearance to such a degree that when he went home on a leave of absence, his children hung on to his wife's skirts and wanted to know who that strange man was

The *esprit* in this camp is splendid and I have seen very few individuals who had the proverbial "streak of yellow" Every man does his work (and it is real work), uncomplainingly and ungrudgingly All feel that they are interested in a common cause and each man is putting his shoulder to the wheel

Our working day is not determined by any labor union, we are at hammer and tongs from sunrise to sunset Between setting-up exercises, drills, lectures, quizzes, French and other studies, we have no time to give way to morbid introspection The mess call is the most popular call in camp Food never tasted so good as it does here in camp This is due in part to the fact that combustion in each one of us is very active, but the food is judiciously selected, properly prepared and with the right combinations in the menu The physical training of the camp is under the supervision of Capt Albert McConaghy of Philadelphia His methods of whipping men into shape are unique and are based on sound physiologic principles He explains that it is his purpose "to so guide and direct the doctors along the lines which make for a healthy action of all the functions of the body, combined with a proportionate symmetrical development, as to produce that fulness of bodily health and muscular activity which are the natural birthright of every normal man, woman and child"

At Fort Riley

There are today 1,020 physicians from private life undergoing training in this camp It is a big melting pot, into which professional men from all parts of the country, of every degree of standing, are thrust for three months'—more or less—intensive instruction and drill to be transformed into officers for the Army It is a big task To take Dr Brown of Paducah Center, Neb, away from his country practice and from the comforts and coddling of his family and subject him to the discipline and discomfort of a soldier—to teach a man who has been accustomed to submit to no superior control to sink his individuality and become an efficient unit in Uncle Sam's great war machine—this is the task the Medical Department of the United States Army is performing here.

The first lesson, and perhaps the hardest, for the doctors to learn is that they are no longer doctors but army officers They have not only to learn how to act as such, but the military spirit must become a habitual attitude of mind

They must learn how to obey commands instinctively and unquestioningly so they may be able to command such instinctive and unquestioning obedience from the men who are to be placed under their control The majority of these medical reserve officers are to command units of the medical department of the new conscript army and on them will devolve the responsibility for the efficiency of these units in the field of operations They must learn how to provide rations, clothing and shelter for their men they must learn how to obtain and account for their medical supplies they must learn all the details of field army operations so that their units may coordinate perfectly with the line organization in combat Knowledge of medical and surgical technic is of subsidiary importance. The Army takes it for granted that all of us already are sufficiently well equipped as professional men It is of the highest importance however, that an officer should know how many rations each of his men is entitled to and where they come from where he is to obtain his medical supplies, and how he is to dispose of his sick and wounded

As soon as this fact percolates into the reserve doctor s mind he understands the significance of the training given him here and enters into the work with a loyalty and good will that produce rapid results It is a strenuous life The first note of the bugle sounds at 5 15 a m and from then till taps at 10 p m. the student officer has hardly a moment of leisure. There are two hours of drill No matter how hot the day back and forth the one-time doctors tramp It is tours right and 'about face —over and over again—and the drill instructors explain and explain again the movements and then scold and storm because awkward feet do not promptly obey the command Then there are classes in which the instructors try to cram into the heads of their pupils the dry and intricate details of army organization and field tactics One of the biggest tasks is to learn the exact minutiae required in Army correspondence To the average physician who notoriously is careless in the keeping of accounts and records this is doubly difficult. But it must be learned To the dotting of an i and the crossing of a "t the Adjutant-General s Office requires the most painstaking attention to detail in the making out of reports requisitions etc Any inattention to detail is sure to bring the letter or report back for correction And Uncle Sam keeps a watchful eye on all of his property Every tent peg, every penny must be accounted for

What perhaps impresses the student medical officer most strikingly here is the physical training Most of them come here with flabby muscles and protuberant abdomens stooped shoulders and weak calves They have ridden in automobiles eaten heartily smoked heavily and perhaps were accustomed to a good deal of alcoholic stimulation and have never taken any exercise to amount to anything Here the first thing every morning is physical exercise when a lot of muscles whose use had almost been forgotten through neglect are again brought into play, and the last thing in the afternoon is an hour and a half of hiking' over the hills, facetiously called 'equitation.' So far, few of the officers have got anywhere near a horse. It is "shank s mare they ride, and a poor steed she proves to be at first We doctors are not only made to walk but we are run until our tongues hang out and the sweat streams down our backs and soaks through our puttees Many of the heavy weights straggle by the wayside winded, and all except the young men come in thoroughly tired But a cold shower has surprising restorative powers and after a hearty supper and a night s sound sleep, few there are who do not awaken fresh and vigorous for another day's grind Men who have been here since June are brown and hard, trained to a physical efficiency that will be able to undergo any test the battlefields of France may offer

It is not like home here. It is no picnic. It is a foretaste of war, and we can expect that Sherman's dictum will prove true An Army reserve officer who expects to have a private room with bath and linen and silver dining table service had better disabuse himself of the idea at once Here they live in barracks built a good deal like sheep sheds 130 men to each barracks and crowded so closely that only about 12 inches is allowed between cots In the mess halls there is hardly elbow room and of course, the furniture is of the crudest sort. But the food is good and plentiful, and the hard exercise and outdoor life give keen appetites and excellent digestions Under such conditions, dyspepsia is almost unknown Should these student officers never see a battlefield, this physical training will be of inestimable value to them. They will have learned how to keep strong and healthy

An Oculist in a Cantonment Camp

The following is part of a letter from Dr Casey A Wood of Chicago, who writes from Camp Sherman, Chillicothe, Ohio The letter was not written for publication

'It is rather hard on the old man to rise at 5 30 in a 'well ventilated,' fireless building and go outdoors to another, also fireless building for washing purposes, including an ice-cold shower bath if one has the heart and nervous system for it It will require one week more of work to finish our special eye ear nose and throat hospital, but when it is equipped it will be admirably adapted to our needs As there are only about 4,000 troops here I have had very little to do, except to get acquainted with my surroundings and my colleagues—among the latter are our genial and hard working commander, Major Kinnard, C R Holmes of Cincinnati, J A Harvey of Chicago, Roger S Morris and Alfred Friedlander of Cincinnati, Charles E Barnett of Fort Wayne and many others The hospital has 1 000 (expansible to 1,500) beds, comprising 55 buildings all connected by glassed-in corridors The officers' quarters are good and the victuals of the best We expect to get into permanent quarters, with a real table chair and perhaps bed—I would like a cot just as well—and wash-stand in about ten days Sanderson's Evanston and N W University Unit volunteered in a body today, they are quartered next to our building, to act as noncommissioned and privates We need about 400 in the Base Hospital Service Outside, the 4 000 are drilling, drilling from morn to eve Officers say they are more enthusiastic than regulars

MILITARY SURGEONS AND CIVILIAN GUESTS TO HOLD SPECIAL MEETING AT FORT BENJAMIN HARRISON

CAMP FIRE AND BARBECUE

The Association of Military Surgeons will hold its annual meeting in the Medical Officers' Training Camp at Fort Benjamin Harrison near Indianapolis Ind October 8 to 10 Aside from the papers to be furnished by the program committee there will be much of interest to all physicians in the exhibition of the work of training of physicians to become medical officers which is going on at this camp There will be displays of the organization and field work of regimental detachments field hospitals and evacuation hospitals Instead of the usual social diversions and receptions accompanying the meetings of the association, it is planned to have the evenings spent in the open about great camp fires with songs, vaudeville and talks by officers who have had service in the present war For one evening a big barbecue is planned

SPECIAL ARRANGEMENTS FOR CIVILIAN PHYSICIANS

Civilian physicians will be welcome to attend the meetings and those bringing their own blankets or cots and mattresses can be accommodated with lodging and food in the camp at a cost of $1 per day The number of officers in the camp at this time, together with the visitors, will exceed 1,300

Physicians Recommended for Commission in Reserve Corps

During the week ending Sept 15 1917, 420 physicians were recommended to the Adjutant-General of the Army for commission in the Medical Reserve Corps the proportion being eleven majors, fifty captains and 359 lieutenants

Red Cross Division for Work in Belgium

A special department under the American Red Cross Commission to France to direct all Red Cross activities in Belgium was recently announced Dr Ernest P Bicknell formerly director-general of the civil relief of the American Red Cross and now deputy commissioner to Europe is to be placed in charge of the work in Belgium Assisting Dr Bicknell will be Rev John Van Schaik of Washington, D C.

Intensive Training in Orthopedic Surgery for Special Medical Officers

For those members of the Medical Officers Reserve Corps or those intending to apply for commission who have had only a general surgical training and who desire to be assigned to the orthopedic service of the Army a course of intensive instruction in the fundamentals of orthopedic surgery, as related to the military service, has been arranged This course is of about six weeks' duration, and will be given at various universities Those interested may obtain full information from Major E G Bracket, director of the Department of Military Orthopedic Surgery, Surgeon-General's Office, Washington, D C

Red Cross Issues Manuals for Making Surgical Dressings

The American National Red Cross has issued 500,000 manuals on the making of surgical dressings These are now being sent out to the various Red Cross chapters throughout the country The manual was prepared by Dr John A Hartwell, New York, and a committee of surgeons, nurses and lay workers, on the basis of recent hospital experience both in this country and in the war zone

Casualties in Base Hospital No 5

The War Department announces the following supplementary list of wounded at Base Hospital No 5 following the air raid, September 4, at 11 p m, Lieuts Ray W Whidden, M R C, New York, Thaddeus D Smith, M. R. C, Neenah, Wis, Clarence A McGuire, M R C, Kansas City, Mo It was in this same attack that Lieut William D Fitzsimmons, M R C, of Kansas City was killed Two privates of the medical department and one of the medical enlisted reserve corps were killed, and several other privates and nurses were wounded

St Louis Contribution to the Medical Reserve Corps

The last number of the weekly *Bulletin* of the St Louis Medical Society states that out of its membership of 850, 134 have applied for commission in the Medical Reserve Corps Their names are listed in the *Bulletin*, and those who are already in active service are indicated There are sixty-nine of the latter This shows who are not slackers in the St Louis Medical Society We commend to other societies that issue bulletins this idea of publishing the names of those who have accepted commission in the Medical Reserve Corps

Medical Sections of State Councils of National Defense to Meet

The Committee on State Activities and Examinations of the General Medical Board has decided to bring together for conference the members of the various state committees, medical section, Council of National Defense at the Clinical Congress of Surgeons of North America which is to be held the week of October 22 in Chicago

The committees will assemble on October 22 in the hall provided for the purpose in the Congress Hotel of Chicago, where booths will be assigned to each committee Here they may receive and give information to medical men attending the congress from their respective states, and arrangements will be made to conduct examinations for enrolment in the Medical Reserve Corps

On the afternoon of October 23, a general business meeting of the committees will be held with the chairman, Dr Edward Martin, presiding, at which time matters of importance will be discussed and provisions made for a later meeting in the week to carry out plans that may be necessary as a result of the discussion at the preliminary meeting

Organization of Senior Military Medical Association

Surgeon-General Gorgas recently called a representative committee of the older physicians to Washington for conference, and it was there arranged that an organization of the physicians past the age of 50 years (the age limit for admission to the Army and Navy Reserve Medical Corps) should be formed, and that it should also admit physicians under 55 years if they are kept at home by reason of teaching in medical schools or being unable to pass the severe medical examination required for admission to said Medical Corps At this meeting the Senior Military Medical Association was formed The purpose of the association, it is stated, is to serve the government by performing such medical work as the members are capable of, especially at or near the member's residence Its members mostly can do only part-time work, but some are able to go from home and do full-time service. The arrangement will probably be a contract with the government to do special service, with a military grading The pay will be according to the grading and work performed It is felt that the members of the association can act as consultants in general and special physical conditions of recruits and conscripted men, also, in matters of sanitation and hygiene, and in making general physical examinations and mental and special examinations and in working in local hospitals or established places or cantonments where the sick or injured men may be sent, or those where fitness may be brought about in men medically rejected from admission to the service, also in performing any other work they may be capable of by the direction of the government.

Men may apply for admission to the S M M A by filling out the blank card which will be supplied on request to Dr Alexis Dupont Smith, secretary, and returning it properly filled out with $1, the annual dues made necessary to cover postage and incidental expenses

For the present, residential limit of eligibility for membership includes Pennsylvania, New Jersey, Delaware and Maryland When points remote from Philadelphia have organized units or branches of the S M M A, membership may be transferred

The following officers were elected president, Dr W W Keen, secretary-treasurer, Dr C B Longenecker, chairman, executive committee, Dr William Duffield Robinson, all of Philadelphia, and secretary, executive committee, Dr Alexis D Smith, 5926 Greene Street, Germantown

Orders to Officers of the Medical Corps

Col G A Skinner, M C, in addition to his other duties, is designated as post surgeon, Fort Sam Houston, Texas

Lieut Col T L Rhoads, M C, to Syracuse, N Y, reorganization camp, for duty

Capt Francis X Strong, M C, from El Paso, Texas, to Washington for duty

Lieut Col Louis T Hess to duty at Charleston, S C

Capt A D Davis, M C, to Tenafly, N J, for duty as camp sanitary officer during the construction of cantonment at that place

First Lieuts R D Bryson, E B Erskine and C O Reed, M C, Neb N G, to Nebraska N G, Field Hospital No 1, Fort Riley, for duty

Col Guy L Edie, M C, is relieved from the further operation of Par 35, S O 296, Dec 19, 1916, War D

Lieut Col H H Baily, M C, to Camp Grant, Rockford, Ill, 86th Div, for duty

The promotion of Major E B Vedder, M C, to be lieutenant colonel in Medical Corps from May 15, 1917, is announced

Officers of M C to duty as follows Lieut Col Orville G Brown to Camp Greene, Charlotte, N C, 41st Division, as chief surgeon, Major L O Tarleton to Tenafly, N J, for duty as camp sanitary officer during construction of cantonment

Capt A D Davis, M C, to Linda Vista, Calif, Camp Kearny, for duty

First Lieut. Robert H Wilds, M C, to Manila for duty

Orders to Officers of the Sanitary Corps

First Lieut A W Gauger, San Corps, to Fort Sill, Okla for duty at the gas school

First Lieut H R Ralfe, San Corps, to New York, for duty

First Lieut C Parker, San Corps, to field medical supply depot, Washington, for duty

Orders to Officers of the Medical Reserve Corps

ALABAMA

To Atlanta, Ga, for duty, Major E D Bondurant, Mobile

To Camp Kearny, Linda Vista, Calif, for duty Lieut W S Johnson, Notasulga

To Macon, Ga, Camp Wheeler, for duty as chief of the surgical service, Major Herbert P Cole, Mobile

To Syracuse, N Y, for regimental duty, Lieuts D B Faust, Clayton, and F H Craddock, Sylacauga

ARIZONA

To report by telegraph to commanding general, Southern Department, for duty, Capts A L Tilton, Kingman, W M Randolph, Tombstone Lieuts T Watkins, Bisbee, C B Wiley, Oldtrails, W E McWhirt, Safford, and R G Bazell, Winslow

ARKANSAS

To Fort Ethan Allen, Vt, for duty, with First Vermont Inf, B Lieut L M Lile, Jonesboro

CALIFORNIA

To American Lake, Wash, for duty, Capts R Cadwallader, W B Deas, San Francisco, Lieuts R M Jones, Fresno, and E C. Houston San Francisco

To Camp Kearny, Linda Vista, Calif, for duty in the cantonment laboratory, Capt. Robert L Tebbitt, Los Angeles

To Linda Vista, Calif, for duty, Lieut H S Keyes, Los Angeles.

To report by telegraph to commanding General Western Department for duty Capt B P Stookey Lieuts A M Tweedle Los Angeles and D Dwire San Pedro

COLORADO

To Denver Colo to examine applicants for appointment in the Officers Reserve Corps Capt Cuthbert Powell, Denver

To Fort Douglas Utah to make examinations in his specialty, Lieut Phillip Work Pueblo

CONNECTICUT

To Fort Snelling Minn, and report in person to the commanding officer of that post for duty with the Forty First Infantry as assistant to the surgeon and by letter to the commanding general Central Dept, Lieut Frederick G Goodridge Pomfret Center

To New Haven Conn for duty, Lieut H S Arnold New Haven

To Ranteul Ill and report in person to the commanding officer Signal Corps Aviation School for duty as post surgeon and by letter to the commanding general Central Dept Capt Richard Blackmore Norwich

DISTRICT OF COLUMBIA

To Syracuse N Y for regimental duty, Lieut L. H English, Washington

FLORIDA

To Anniston Ala base hospital as roentgenologist, Lieut J D MacRae Tampa

To Atlanta Ga Emory University for duty Lieut J H Hall, Sopchoppy

To Baltimore Md Phipps Clinic for a six weeks course of training Lieut B N Burk Titusville

To Fort Sill Okla for a course of instruction in gas defense Lieuts C C Tillman Gainesville R Jeffers Lakeland and L J Firl Tampa

To Syracuse N Y for regimental duty Lieut. J S Coker Gardner

GEORGIA

To Camp Kearny Linda Vista Calif for duty Lieut Charles M Remsen Atlanta

To Montgomery Ala for duty Capt Y A Little Milledgeville

To report by telegraph to commanding general Southern Department for duty Lieut C R. Bullock Atlanta

To Syracuse N Y for regimental duty Lieuts. O F Keen, Brewton B H Clifton Lyons and J F Arthur Quitman

ILLINOIS

To Des Moines Iowa for duty Capt T S Crowe Chicago

To Fort Constitution N H Springfield Armory, Mass for duty, Lieut W P MacCracken, Chicago

To Fort Riley for a course of instruction, Lieuts Frank A Chapman Chicago and Thomas O Craig Wheaton

To Houston Tex for duty Lieut. T J Riach Kankakee

To Louisville Ky Camp Taylor as chief consultant in otolaryngology, Major F Menge Chicago

To Rockford Ill for duty as chief consultant in otolaryngology Capts. Norval H Pierce Chicago for duty, E. W Fell, Elgin Lieuts O Like and A. B Morrill Chicago

To report by telegraph to commanding General Western Department Capt. T W Bath Bloomington

To Waco Tex, for duty Capt C. F Sanborn, Chicago

INDIANA

To Fort Benjamin Harrison for duty Lieut. K. C Eberly Ft. Wayne

To Fort McPherson Ga for duty Lieut M R Combs Terre Haute

To Houston Tex. for duty as chief of medical service, Lieut F N Shipp Indianapolis

To Rockford Ill as chief of the surgical service Major J W Sluss Indianapolis

To Spartanburg S C for duty as chief of medical service Lieut L. E. Jewett Wabash

IOWA

To Baltimore Md Phipps Clinic, for a six weeks course of training Capt. R G Eaton Cherokee

To Camp Dodge Des Moines Ia for duty Lieut R. F Throckmorton Derby

KANSAS

To Ann Arbor Mich State Psychopathic Hospital for a six weeks course of training Lieut. G E Hesner Topeka

To Camp Pike Little Rock, Ark. for duty Lieut N A. Seehorn Hutchinson

KENTUCKY

To Fort Sill Okla for a course of instruction in gas defense, Lieut J W Galvin Louisville.

To Garden City N Y 26th Division, Nat. Guard Lieut. W E Baxter Louisville.

To Houston Tex, for duty Capt. R M Taylor Naceo

To Louisville Ky for duty Major M Board Louisville as chief of surgical service Capt. P H Stewart Paducah for duty Lieut E Moorman Harned

To Syracuse N Y for regimental duty Lieuts E. C Brandon Elizabethtown H T Alexander, Fulton, and S B Casebolt, Pikeville.

To Washington D C. for duty Lieut. O R. Miller Louisville

LOUISIANA

To Fort D A Russell Wyo to make examinations in his specialty, Lieut Louis V J Lopez New Orleans.

To Fort Riley Kan. to make examinations in his specialty, Lieut Ralph C P Truitt Jackson

MAINE

To Camp Devens Ayer, Mass, as chief of the surgical service, Major W I Cousins, Portland

MARYLAND

To Camp Meade Annapolis Junction, as chief of the surgical service, Capt A M Shipley Baltimore

To Fort Oglethorpe and report in person to the commanding officer medical officer training camp for a course of instruction, Lieut Edward A Looper, Baltimore

To Fort Sill Okla for a course of instruction in gas defense, Major F S Linthicum Baltimore

To Garden City Long Island, N Y, 42d Division, for duty, Capt C H Conley Frederick

To Syracuse N Y for regimental duty Capt. T M Shorkley, Kensington Lieut I M Zimmerman Williamsport

To Washington D C Major T C Janeway, Baltimore

MASSACHUSETTS

To Allentown Pa, for duty, Lieut Otho L. Schofield, Newton

To Anniston Ala for duty, Lieut H Caro Palmer

To Ayer Mass, for duty Capt D A Thom Worcester

To Boston Mass Boston Psychopathic Hospital for a six weeks' course of training Lieuts F H French, and H R Viets Boston

To Camp Devens Ayer, Mass, for duty Capts J H Wright, Brookline and J V May Worcester

To Charlotte N C for duty, Lieut A P Chronquest Hathorne.

To Chillicothe O for duty Capt H L Stick, Baldwinville

To Fort Leavenworth Kan for temporary duty making neurologic and psychopathic examinations of the Seventh Regiment of Engineers Lieut Ralph M Chambers Westboro

To Fort Sam Houston Tex for duty Lieut G A MacIver, Boston

To Fort Sill Okla to make examinations in his specialty, Lieut John J Stack Boston

MICHIGAN

To Alexandria La for duty Capt J T Sample, Saginaw

To Ann Arbor Mich State Psychopathic Hospital for a six weeks' course of training Lieut R S Morrish Flint

To Battle Creek Mich for duty, Lieuts A F Jennings, and H O McMahon Detroit

To Fort Riley for a course of instruction Lieut David Littlejohn Bridgman

To Fort Sill Okla, for duty, Capt Carey P McCord, Detroit

To proceed to his home and report by telegraph to the A G of Army Capt F S Love, West Branch

MISSISSIPPI

To Little Rock Ark. for duty, Lieut R T O Neil Vicksburg

To Syracuse N Y for regimental duty, Capts. B J Marshall Agricultural College J T Barbee, Ripley Lieuts V N Nichols Carson T J Bush Clarksdale, V H Bean Smithville, and Z C Hagan Union

MISSOURI

To Camp Custer Battle Creek, Mich, as chief of the surgical service Major W J Frick Kansas City

To Camp Meade Annapolis Junction Md as assistant to chief of the medical service in the care of cardiovascular cases, Lieut A E. Strauss St Louis

To Des Moines Ia for duty Lieut D E. Singleton Clarence

To Fort Benjamin Harrison for duty Lieut J C Edwards O Fallon

To Fort Riley for duty Lieut Samuel R. Johnson St. Charles

To Linda Vista Calif for duty, Lieut C. L Woolsey Chillicothe

To Mount Clemens Mich Flying School, for duty Lieut F E Woodruff St. Louis

To Washington D C for duty Major J F Binnie Kansas City, for duty in connection with the brain section of surgery of the head Major G Seelig St Louis.

NEBRASKA

To Baltimore Md Phipps Clinic for a six weeks course Lieut P A. Royal Lincoln

NEVADA

To Fort Leavenworth Kan and report in person to the commanding officer of that post for duty with the Seventh Engineers as assistant to the surgeon and by letter to the commanding general Central Department Lieut. Delos A Turner, Goldfield

NEW HAMPSHIRE

To Atlanta Ga, for duty, Lieut H W Cleasby, Lancaster

NEW JERSEY

To Camp Sheridan Montgomery Ala, for duty as roentgenologist, Lieut. J L. Gariss Trenton

To Camp Sherman Chillicothe O Lieut. H I Gosline Trenton

To Fort Des Moines Ia. for duty, Lieut E. A Draper Cape May

To Fort Sill Okla for a course of instruction in gas defense Lieuts F B Gilpin, Cranford and P Du B Bunting Elizabeth

To Greenville S C for duty Lieut J F Wallis Pleasantville

To Wrightstown N J for duty Major H A Cotton Trenton, for duty in charge of division of otolaryngology section of surgery of the head Capt. W P Eagleton, Newark.

NEW YORK

To Albany Hospital and Medical College Albany N Y, for recruiting Base Hospital No 33, Capt J F Southwell Albany

To Annapolis Junction for duty Capt M W Rayner, New York City

To Anniston Ala. for duty, Lieut. E P Boas New York City

To Camp Beauregard Alexandria, La. for duty, Lieut. M Maslon, Glens Falls.

To Camp Dix, Wrightstown, N J, for duty, as chief of the surgical service, Capt H D Collins, New York City

To Columbia, S C, for duty, Capt R H Hutchings, Ogdensburg, Lieut. F C Robbins, Hornell

To Des Moines, Ia, for duty, Lieut Henry M Larson, New York City

To Fort Benjamin Harrison for duty, Capt G P Coopernail, Bedford

To Fort Ethan Allen, Vt, for duty, Lieuts G W Timmers, Castleton, and C W Many, Florida

To Fort Leavenworth, Kan, and report in person to the commanding officer, department laboratory for duty and by letter to the commanding general, Central Dept., Lieut. David M Kaplan, New York City

To Fort Sill, Okla, Camp Doniphan, for duty, Lieut. L H Nahum, New York City

To Fort Snelling, Minn, and report in person to the commanding officer of that post for duty with the Forty first infantry as assistant to the surgeon and by letter to the commanding general, Central Dept, Lieut Joseph H Beattie, Dobbs Ferry

To Garden City Long Island, N Y, 42d Division, for duty, Lieut M Freiberger, New York City

To Greenville, S C, for duty, Lieut F M Shockley, Brooklyn

To Hattiesburg, Miss, for duty, Lieut. R F Zimmerman, Elmhurst

To Little Rock, Ark, for duty, Capt G B Campbell, Utica, and Lieut C L. Sicard, Amsterdam

To Petersburg, Va, for duty Capts James B Clark, New York City, and J M W Scott, Schenectady

To Rantoul, Ill, and report in person to the commanding officer, Signal Corps Aviation School, for duty as medical member of the examining board, Aviation Section, Signal Corps, and by letter to the commanding general, Central Dept., Lieut. Conrad Berens, Jr, New York City

To report by telegraph to the commanding general Eastern Department, for assignment to duty, Lieut. John B Byrne, Jr, Brooklyn

To report by telegraph to commanding general Southern Dept, for duty, Lieut. L J Stahl, Flushing

To Syracuse, N Y, for regimental duty, Lieuts S S Piper, Elmira, W E Boyce, Yonkers

To Washington Barracks D C, to make examinations in his specialty, Lieut Edward L. Hanes, Rochester

To Wrightstown, N J, for duty, Lieut. L M Wilbur, Jasper

To Yaphank Long Island, N Y, for duty, Major G M Hammond, New York City, and Capt A J Rosanoff, Kings Park.

NORTH CAROLINA

To Fort Ethan Allen, Vt, for duty, Capt W Allan, Charlotte

To Macon Ga, for duty, Lieut A S Pendleton, Raleigh

To Newport News Va, and report in person to the commanding officer, port of embarkation, for duty, Capt James E Stokes, Salisbury

OHIO

To Battle Creek, Mich, for duty, Capt F D Ferneau, Toledo

To Fort Riley, for a course of instruction, Lieut. Myron Hanna, Scott

To Fort Worth, Tex, for duty, Lieut V R Small, Columbus.

To New York N Y, Neurological Institute for a six weeks' course of training, Lieut W M Blaine, Youngstown

OKLAHOMA

To Fort Riley, for a course of instruction, Lieut. Paul R Siberts, Cooperton

To Fort Sam Houston, Tex, for duty, Lieut. D A Gregory, Ardmore.

To report by telegraph to commanding general, Southern Department, for duty, Lieut Burton Fain, Frederick.

OREGON

To Fort Leavenworth, Kan, and report in person to the commanding officer of that post for duty with the Seventh Engineers as assistant to the surgeon and by letter to the commanding general Central Dept Lieut. Philip J Keizer, North Bend

PENNSYLVANIA

To Allentown, Pa, and report in person to Major Elbert E Parsons for duty and by letter to the commanding general, Eastern Department, Lieut Dwight E Long, Freeburg, for duty with Base Hospital No 27, Lieuts H G Clarke, Bridgeville, and E W Fiske, Pittsburgh

To American Lake Wash, for duty, Lieut R P Smith, Fort Louden

To Annapolis Junction, Md, for duty, Lieut C A Patten, Philadelphia

To Ann Arbor, Mich, State Psychopathic Hospital, for a six weeks' course of training, Lieut E H Erney, Philadelphia

To Augusta Ga, for duty, Lieut E A Stracker, Philadelphia

To Belleville, Ill, and report in person to the commanding officer for duty as medical member of the examining board, Signal Corps Aviation School, and by letter to the commanding general, Central Department, Capt Walter S Cornell, Philadelphia

To Camp Eldridge Laguna for duty, Lieut B F Fridge, Jr, Manila

To Camp Funston, Fort Riley, Kan, for duty in the cantonment laboratory, Lieut Russell Richardson, Newtown

To Canal Zone for duty, Lieut P A Trau, Philadelphia

To Deming, N M, for duty, Lieut. H Phillips, Philadelphia

To Fort Ethan Allen, Vt, for duty, Lieut. C W Lincoln, Wayne

To Fort Monroe, Va, for duty, Lieut. W J Lynch, Philadelphia

To Fort Niagara, N Y, for duty, Lieut A A Eshner, Philadelphia

To Fort Sam Houston, Texas, for duty, Major J H W Rheim, Philadelphia

To Fort Sill, Okla., for a course of instruction in gas defense, Lieuts C B Farr and Jo Leidy, Philadelphia

To Fort Snelling, Minn, and report in person to the commanding officer of that post for duty with the Forty First Infantry as assistant to the surgeon and by letter to the commanding general, Central Department, Lieut. Cheney M Stimson, Philadelphia

To Garden City, N Y, Forty Second Division, for duty, Lieuts P H Tibbins, Beech Creek, R L Stackpole, Butler, F O Batteiger, Greenville, W F Satchell, Saxton, A M O'Brien, Sharon, E Storer, W Windfield and F C Katherman, Whitney

To Petersburg Va, for duty in charge of division of otolaryngology, section of surgery of the head, Capt E W Day, Pittsburgh

To Pittsburgh for enlisting personnel of Red Cross Hospital Unit L, Capt R V Robinson, Pittsburgh

To report by telegraph to commanding general, Southern Department, for duty, Lieut F Brady, Philadelphia

To Spartanburg S C, for duty, Lieut. S Leopold, Philadelphia

To Sunbury, Pa, Twenty Eighth Division, Pa N G, for duty with First Engineers, Lieut B H E W Lucke, Philadelphia

To Syracuse, N Y, for regimental duty, Capt E E W Given, Philadelphia, Lieuts J C Kochczyski, Hazleton, F W Knippel, Mercer, C D Bradley, Philadelphia, and R H Murdock, Wilkes-Barre

PHILIPPINE ISLANDS

To Camp McGrath, Batangas, for duty, Lieut Thomas C Walker, Manila

To Camp Stotsenberg, Pampanga, for duty, Lieut H W Kennard, Manila

RHODE ISLAND

To Chillicothe, Ohio, for duty, Lieut H P B Jordan, Providence

SOUTH CAROLINA

To Fort Sill Okla, for a course of instruction in gas defense, Lieut L Petera, Columbia

SOUTH DAKOTA

To Fort Riley, for a course of instruction, Lieut Harry C Parsons, Watertown

TENNESSEE

To Fort Des Moines, Iowa, for duty, Lieut. C M Gloster, Brownsville

To Fort Oglethorpe, for training with Hospital Unit P, Major William B Malone, Memphis

To Fort Riley, for a course of instruction, Lieut Polk D Brown, Irving College

To Fort Sill Okla, for a course of instruction in gas defense, Capt. L A Stone, Memphis

To Syracuse, N Y, for regimental duty, Lieut T B Givan, Nashville

TEXAS

To Fort Riley, for a course of instruction, Lieut Arthur W C Bergfeld Seguin

To Petersburg Va, for duty, Lieut R L Davis, Big Springs

To report by telegraph to commanding general, Southern Department for duty, Capts R D Gist, Amarillo G H Garrett, Del Rio J M O'Farrell, Richmond, J M Bannister, Snyder Lieuts J H Walker, Alvard, J D Motheral, Angleton, F E Hudson, Anson C H Tindall, Appleby, W E Watt, Austin, C L Monk, Austwell, O E Egbert, Beeville, L. F Putnam, Blessing M L Fuller, Bradshaw, W F Chambers, Bronte W C Weir, Buckholts, A J Evans, Caddo D M Speer, Celina, M M Risinger, Chalk Mt, W A Warner Claude, J M Trible, Cuero, J H Erwin, Dallas, M M Morrison, Denison, E W Breihan, Denton, V V Clark, Estelline, H F Wilkins, Fort Worth, B F Smith, Jr, Galveston J C Dobbs, Ganado D F Gray and G Miller, Gause, W T Daws and J A Maness, Gonzales, M L Stricklin, Gustine, F W Carruthers, Hillsboro, W N Shaw, Houston, H L D Jenkins, Hughes Springs, G L Langworthy, Lakeview, O P Goodwin, Lamasco, N C Boethel, Leroy, A Nowlin, Liberty Hall, O A Smith, Mansfield, R L Hamilton, Matador H E Luehrs, Mathis R E Pridgen, Oakland, I A Dix, Otto, J W Harrison, Palacios, G W Wilhite, Palestine, W A Jennings, Park Spring H A White, Raymondville, R R Allen, Roby, A G Neighbor, Rosenberg W M Johnson, Rosston, R A Olive, San Angelo, W J Vinsant, San Benito D R Aves, Seabrook R W Horton, Smiley, H W Gough and R L Kimmins, Temple, J J Livingston Tyler, F Toomim, Waco, O P Sweatt, Waxahachie, and D L Sanders, Wills Point

To report in person to commanding general, Southern Department, for duty, Lieut W T Harris, San Antonio

VIRGINIA

To Camp Lee Petersburg, Va, for duty as chief of the surgical service, Lieut W L Peple, Richmond

To Fort Riley Kan, for duty, Lieut H J Hayes, Richmond

To Fort Sill, Okla, for a course of instruction in gas defense, Lieut J B Halligan, Petersburg

To Sunbury, Pa, Twenty Eighth Division, P N G, for duty with First Engineers, Lieut C M Thomas, Healing Springs

To Syracuse, N Y, for regimental duty, Lieuts B R. Caldwell, Newcastle, and B B Dutton, Winchester

WASHINGTON

To report by telegraph to commanding general, Southern Department, for duty, Major R W Newton, Fort George Wright.

WEST VIRGINIA

To Syracuse N Y, for regimental duty, Lieuts H W Daniels, Elkins, R L Eltinge, Sterling

WISCONSIN

To Alexandria, La, Base Hospital as a roentgenologist, Lieut C H Nims, Oshkosh

To Syracuse, N Y, for regimental duty, Lieut S J Lewis, Milwaukee

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest such as relate to society activities, new hospitals education, public health, etc)

CALIFORNIA

Lane Lectures—The sixteenth course of Lane medical lectures will be delivered by Dr Simon Flexner, director of laboratories of the Rockefeller Institute for Medical Research on the evenings of October 8 9 10 11 and 12 at 8 15 in Lane Hall Stanford University Medical School, San Francisco The medical profession and students of medicine are cordially invited to attend The titles of the lectures to be given by Dr Flexner are as follows

PHYSICAL BASIS AND PRESENT STATUS OF SPECIFIC SERUM AND DRUG THERAPY

October 8 Epidemic Meningitis Lobar Pneumonia Bacillary Dysentery and Specificity in Bactericidal Serums '
October 9 'Gaseous Gangrene Shiga Bacillary Dysentery and the Principles of Homoserum Therapy
October 10 Poliomyelitis and the Principles of Homoserum Therapy "
October 11 Local Specific Therapy as Illustrated by the Serum Treatment of Epidemic Meningitis, Poliomyelitis and Tetanus '
October 12 Chemotherapy of the Spirochetal Infections "

ILLINOIS

Personal—Dr Ralph T Hinton who was appointed superintendent of the Elgin Hospital for the Insane assumed his duties, September 6 He succeeded Dr Henry J Gahagan

Chicago

Held for Selling Morphin—Sylvan Sommers, recently said to have been a lieutenant in Ambulance Company No 1 of the Illinois National Guard and claiming to be a physician, has been arrested and turned over to United States authorities on the charge of selling habit-forming drugs Investigation showed that he is not a physician

Annual Meeting of Railway Surgeons—The annual meeting of the "Soo" Surgical Association will be held in Chicago Oct 22 and 23 1917 the first two days of the meeting of the Clinical Congress of Surgeons of North America The meeting will be clinical in character and various sessions will be held in hospitals and other institutions in the city

Shortage of Instructors in Medical College—Twenty-five instructors from the Medical School of the University of Illinois Chicago have entered the medical service of the United States Army This shortage may compel the shortening of the curriculum President Edmond J James of the university anticipates a decrease of 35 per cent. in the attendance at the school this fall

Personal—Dr Sidney I Kornhauser, assistant professor of zoology in Northwestern University recently delivered an address on ' Sex Determination and the Nature of Secondary Sectional Characteristics' at a meeting of the faculty and students of the Graduate Summer Quarter in Medicine of the University of Illinois At the same meeting Dr Ruben M Strong associate professor of anatomy Vanderbilt University, made an address on "Adaptation in Bone Architecture," Dr Orville H. Brown, Phoenix Ariz, delivered an address on "Asthma,' and Dr Addison Gulick, assistant professor of physiology in the University of Missouri, made an address on Overfeeding and the Calorie Problem in Human Metabolism"——Dr Charles M McKenna, who has been ill for the past two months following a Roentgen-ray burn, was recently operated on and is now convalescent.

IOWA

Schools Closed—The schools of Davenport were all closed on September 7 on account of infantile paralysis Children under 16 years of age have been forbidden to enter motion picture theaters and attendance at church and Sunday school has been prohibited One case of infantile paralysis has been reported from Rockingham.

Personal.—Dr Charles F Read, superintendent of the Watertown Hospital, has been made superintendent of the Insane Hospital at Dunning, Ill.——Drs Thomas F Neil and Thomas J Riach, interns at the Watertown Hospital, have entered the Hospital Corps of the Army——Dr George W Yavorsky, Belle Plaine captain in the Medical Reserve Corps, has been ordered to Fort Benjamin Harrison.

MARYLAND

For Prevention of Diphtheria—In order to prevent the spreading of diphtheria in the schools, Health Commissioner Blake has begun making cultures from all children who have had this disease since July 1 Until now he has discovered three carriers of the disease who will be excluded from the schools until their carrying powers have become negative The commissioner is also making tests of those who have had scarlet fever, to determine whether traces of the disease are still in their systems

Personal—Dr William Wirt Eichelberger has received a commission as captain in the Medical Reserve Corps, and has been selected by the National Committee on Mental Hygiene to help form a unit of neurologists and psychiatrists in the country Dr Eichelberger is a graduate of the University of Maryland——Dr Harry F Shipley, a physician of Granite, and the health officer of the Second District of Baltimore County, was seriously injured recently when his automobile turned turtle with him Dr Shipley's collar bone was broken, his nose lacerated and he was badly bruised about the body He was unconscious when picked up but recovered after being taken to the hospital——Dr P Hamilton Lloyd, Ridge, is at Mercy Hospital, where he will undergo an operation for stomach trouble

Campaign to Fight Tuberculosis—Preparations for an intensive campaign to prevent the spread of tuberculosis in the American Army and among those rejected by the draft will be the theme of the North Atlantic Sectional Conference of the National Association for the Study and Prevention of Tuberculosis, to be held in Baltimore, October 17 and 18 Final details will also be discussed for carrying on the Red Cross Christmas Seal campaign, from which it is hoped to raise the $3,000 000 necessary for this war work How to provide adequate care for the thousands of men who will be rejected from the Army because of tuberculosis or suspected tuberculosis, or who will be discharged because of this disease before the new Army is sent overseas or after it is in France will form the burden of the conference discussion This conference is one of six that will be held this fall in various parts of the United States

MASSACHUSETTS

To Admit Women Pupils—For the first time in its history, Harvard University Medical School will open its doors to women This is on account of the heavy draft by the war on the medical profession, and it is thought desirable to encourage women to take up the study of medicine.

Meeting of Health Officers—The first annual State Convocation and School of Instruction for Massachusetts Health Officials took place, September 4-7 Meetings were held at the Massachusetts Institute of Technology and at the medical schools and hospitals in Boston The papers presented dealt with subjects of interest to physicians, health officers and nurses It is intended to have this an annual affair, and to promote greater interest and attendance, perhaps by allowing traveling expenses to attending health officials, as is said to be done in other states Dr T F Harrington of the state board of health said that in 1916 in Massachusetts there occurred twenty-seven cases of anthrax and four deaths, up to September 1 of this year there had been thirty cases and six deaths This was due to the fact that owing to the war and the increased demand hides which formerly went to England from India and Africa now come to this country The hides in many cases are not properly sterilized (sun dried) and U S consuls' reports as to the condition of the hides shipped are lost or delayed In England where they have a board of anthrax control the total number of anthrax cases reported reached thirty in a year before the war Anthrax is a disease that occurs in animals The animal on being slaughtered sheds its blood on its horns, hide, hair, etc The spores, as is known, are very resistant The disease occurs from handling these animal products not properly sterilized. In all cases investigate the occupation For treatment, in one hospital where they practiced excision of the pustule they had a mortality of 100 per cent., all the patients dying from septicemia At the Massachusetts General Hospital they are using the sustaining treatment, and with better results One patient at North Adams was treated by some serum of Italian manufacture, with recovery The first case that occurred in Boston was in a man picked up on the street, who died in six hours The newspapers reported that he died of arsenic poisoning from handling leather, at the Relief Hospital it was said the man died from concussion of the brain. The necropsy showed that the man had pulmonary edema (edematous form of anthrax) All cases of anthrax are proved by diagnostic methods and injection of guinea-pigs Dr Harrington also spoke of the necessity of reporting births in order to provide certificates for enforcing and regulating the child labor laws, and of the importance in recording all stillbirths to note the occupation of the mother, lead poisoning was to be noted in this connection

MICHIGAN

Licenses Stolen—Dr L N Host, Detroit, reports that a number of valuable papers were stolen from his office, including his licenses to practice medicine in Wisconsin and in Michigan Secretaries of state licensing boards are requested to be on the lookout for these licenses The Wisconsin license was issued in 1915, the Michigan license in 1916

NEW YORK

Paralysis Up-State—Eleven cases of infantile paralysis have been reported recently from Colton, St Lawrence County The schools are closed, and children are barred from public gatherings

Personal—Dr Lewis Shalet has resigned as general and medical superintendent of the Montefiore Home Country Sanatorium at Bedford Hills He will locate at West New York, N J——Bernon Prentice and Joseph Swann, both of New York, have been appointed to serve as deputy commissioners to Major Murphy, Red Cross commissioner to Europe

Examination for Superintendent.—A competitive civil service examination will be held, October 6, in New York state for the position of superintendent of the Iola Tuberculosis Sanatorium in Monroe County The position pays $4,000 a year Applicants must be licensed physicians of New York state, but need not reside in the state Application blanks may be had from the State Civil Service Commission, Albany

Distribution of Pasteurized Milk—The milk stations provided by Nathan Straus in New York City were closed for the season, September 9, after having distributed 2,067,726 bottles and 1,296,021 glasses of pasteurized milk during the previous twelve months During the twenty-five years Mr Straus has been interested in this work, 44,940,907 bottles and 25,305,519 glasses of pasteurized milk were distributed from the infant milk depots maintained in the city

Meeting on Neurologic Surgery—A meeting at which will be presented a symposium on neurologic surgery will be held in New York Polyclinic Hospital, October 1, at 8 15 p m, by the Department of Neurologic Surgery The following subjects will be presented

"Diagnostic Value of Lumbar Puncture," Dr Young C Lott.
"Observations Regarding the Anesthesia in Cerebral Surgery," Dr Charles S Hunt.
"The Appearance of the Fundus Oculi in Certain Intracranial Conditions," Dr James A Kearney
"Presentation of Patients Operated on for Various Intracranial Spinal Peripheral Nerve Lesions," Dr William Sharpe
"Psychopathology," Dr Edward S Cowles
"The Treatment of Hypoplastic and Mentally Impaired Children," D- E Bosworth McCready

New York City

Ambulance Donated to Red Cross—The parishoners of St George Church, Stuyvesant Square, have given the Red Cross an ambulance which is to be sent to France soon An effort is being made to arouse the interest of all the Episcopal churches of the city in a fund for the purpose of sending army kitchen trailers to France

Held for Selling Habit-Forming Drugs—Daniel J Hoyt, lieutenant in the United States Army, M R C, September 8 was held in $1,500 bond on the charge of selling habit-forming drugs The arrest was made following a raid on his private sanatorium Hoyt was in service at Fort Riley, Kan, and was brought to New York for trial

Drug Sellers Sentenced—Federal officials who have been conducting a campaign against the illicit traffic in habit-forming drugs recently secured the conviction of three men, who were sentenced to prison for two years each, and of two boys, who were sent to the Elmira Reformatory for terms of eighteen and thirteer months, respectively

Change in Management of Sanatorium—Dr R W Adkins has become medical director of the Orchard Springs Sanatorium at Dayton, succeeding Dr J C George The sanatorium is now run by an incorporated company Dr K F Shephard, the former owner, remains as president of the board of directors, and consulting psychiatrist

Refuse Incorporation to "Golden Cross"—For the second time the petition for the incorporation of the "Golden Cross," organized to aid soldiers injured in the American Army and Navy and aeronautical service has been denied In July, Judge Ordway denied a similar petition on the ground that the proposed sphere of activities is adequately covered by the Red Cross The petition just recently denied says that the organization does not propose to establish a hospital or furnish medical treatment, but only to provide accommodation for those discharged from medical treatment who need rest and aid during convalescence It is stated by the proposed founders that they did not intend to conflict with the Red Cross, but merely to cooperate, and give sole attention to the aeronautical branch of the service

PENNSYLVANIA

Infantile Paralysis During August—Dr Samuel Gibson Dixon, state commissioner of health, September 7, announced that there had been 107 cases of infantile paralysis in the state in August, but only one district with a serious condition, that at Newcastle Lawrence County had thirty cases reported, with twenty-one from Lancaster Dr Dixon points out that centers of infection for August have been largely those which escaped easiest in the epidemics of 1910 and 1916 Those in the eastern end of the state have been virtually all in rural districts and scattered, whereas last year the cases were mostly concentrated in cities

Philadelphia

Red Cross Carnival—A Red Cross carnival to raise $1,000 for Base Hospital No 20, organized at the Jefferson Hospital, was held by the Fifty-Sixth Street Fourth of July Association, September 14

City Pays for Hospital—The city cleared off its indebtedness for taking by condemnation the buildings of the Medico Chirurgical Hospital, by paying to the trustees of the University of Pennsylvania, September 14, $1,047,372 58

Municipal Appointments—Director Wilmer Krusen, September 14, appointed to the position of assistant medical school inspector at $600 a year each, Drs Charles Salon Wachs, Benjamin Harrison Shuster, William D Barry and Jacob Moses Cahan

Navy Base Hospital on Duty—Members of Naval Base Hospital No 3 have been ordered to report to the Navy Yard for duty Miss Alice M Garrett, chief nurse, said that she had not received further instruction, but that members of the staff are looking forward to orders to proceed to France The staff was recruited at the Methodist Hospital Major Elijah Hillingsworth Siter said that no further base hospitals will be supplied from Philadelphia hospitals

Personal—Dr John Wanamaker III, one of the veterans' of the city's police surgeons in point of service, on September 13 sent his resignation to Dr Hubley Raborg Owen, chief of police surgeons The resignation is effective, October 15 He was appointed a police surgeon in 1904, and for a time was attached to the old ninth district station During the past ten years he has been detailed at the city hall cell room For a time Dr Wanamaker was acting chief surgeon

WISCONSIN

Personal—Dr Samuel Kline, formerly professor of histology and embryology at Fordham Medical School, has been appointed assistant superintendent at the Waldheim Park Sanatorium, Oconomowoc

Graduate Medical Instruction at Home—The State Medical Society of Wisconsin has arranged a course of lectures, clinics and laboratory instructions to be given under the extension division of the University of Wisconsin The course will extend over three weeks, and is being given in Fond du Lac on Mondays and Tuesdays, in Oskosh on Wednesdays and Tuesdays, and in Appleton on Fridays and Saturdays The subject of the course is the "Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs" The fee for the course is $5 The local hospitals are cooperating

GENERAL

The Quality of American-Made Synthetics—The Council on Pharmacy and Chemistry, with the aid of the American Medical Association Chemical Laboratory, announces through the secretary, Prof W A. Puckner, that it proposes to make a study of the quality of American-made synthetics It will examine specimens of important, unofficial synthetic drugs submitted by their manufacturers and later, when these drugs are offered for sale, purchase them on the open market and report on their purity The Council also offers to examine specimens of American made synthetics when submitted by dealers, providing the origin of such specimens is established

This control of synthetic drugs which as the result of the war are now made in this country is believed to be in the interest of American industry, for the protection of the public, and to the satisfaction of physicians Since the manufacture of some of the synthetic drugs is to some extent experimental in this country, it is due physicians and the public that they be given the protection which will come from the proposed investigation of the market supply In undertaking this investigation the Council feels confident that the responsible manufacturer will welcome this check as the best way of establishing complete confidence in his product

FOREIGN

From Havana—Dr T V Coronado has been appointed professor of hygiene and legal medicine at the University of Havana to succeed the late Prof L M Cowley——Dr F M Capote president of the Colegio Medico de Cuba, has been appointed secretary of the national public health and hospital service in place of the late Prof R Menocal

Deaths in the Profession Abroad—**E Rimini**, professor of materia medica at the University of Pavia and author of works on chemistry He lost his life in a railroad accident ——**Manouvriez** of Paris noted for his pioneer work in the protection of miners——**Malgat** of Nice——**C B Rendle** of London aged 82——**J B Fisher**, Liverpool aged 60——**Pasanis** of Madrid whose last work was recently summarized in The Journal, page 763 The Italian casualty lists for the last month bear the names of Lieuts **G Auletta, C Bergonzolo, M Bianchi, P Cavatorti, A Rossi, A Dogliotti, L Salerno** and **P Sartorio** Also Col **C Carratu** and Capt **A C Tamponi** The British casualty lists include Capts **J C Harris, J B Rawlins, H D Eccles, H Y C Taylor, A. Traill, C Weller, R A. Bostock, H K Sewell**, aged 32, **H Ackroyd**, aged 40, **F R Armitage**, aged 34 Lieut-Col **F D Blandy**, Lieut **C M Atkinson**, Major **E F B Wilson**, aged 57 from South Africa, Capt. **D Arthur**, aged 32, who died while a prisoner in Turkey and Lieut.-Col **H A. de Latour**, aged 68, from New Zealand

PARIS LETTER

Paris, Aug 23, 1917

The War

DRY WOUNDS OF THE ARTERIES

Dr Andre Martin reported recently to the Reunion medicochirurgicale de la IIIe Armee eleven observations of dry" wounds so called comprising the following cases humeral artery (four cases), radial arteries and veins (one case), ulnar artery (two cases), anterior tibial artery (one case), and posterior tibial artery (one case) After calling attention to the fact that these conditions have been well known since Fiolle of Marseilles published the results of his investigations, he pointed out that these wounds are seen in lesions caused by bursting shells (even shrapnel), and in so-called setons Clinically there is no symptom that will permit one to establish a diagnosis Roentgenoscopy and an examination of the visible path of the projectile do not always lead to a correct diagnosis, nor can one base one's judgment entirely on the condition of the pulse below the lesion, as to whether obliterated, diminished or normal The pain localized in the seat of the vascular wound is a symptom of no value. As to the anatomicopathologic condition in all the cases in which the vessel was completely severed, a part of the artery had been destroyed by charring, retraction of the proximal end had taken place, with formation of clot, extending upward for a variable distance, there was occasional absence of pulsation and only a slight clot, or none at all, could be observed at the point of section The vascular tunics were contused and ecchymotic (histologic examination) The distal end presented a frayed appearance, but there were no clots, except in one instance To sum up, there were no clots, external hemorrhage or hematoma, that is, such is the typical condition The effect of the dry vascular wounds is often extended to the nerves and the veins The surrounding muscle lesions are of the common type, but certain forms of gas gangrene are less likely to develop, owing to the favoring nature of the vascular dry wound The evolution of these wounds would have been aggravated by a secondary hemorrhage or an arterial hematoma To be sure, with the exception of four cases of wounds of the humeral artery, it was only a question of lesions affecting mediocre vessels, but these traumatisms, since the consequences may be grave, deserve careful attention When the excision is made, one ought in fact to examine and verify the condition of the cluster of blood vessels, even if it is an insignificant looking wound of benign aspect, for there is much truth in the saying that there are no small war wounds

DISAPPEARANCE OF SMALLPOX FROM PARIS

At the last meeting of the Conseil d'hygiene publique et de salubrite of the department of the Seine, Dr Roux director of the Institut Pasteur read a very interesting report on the administration of vaccine in Paris in 1916 He called attention to the fact that the 800,000 vaccinations performed at the beginning of the war and during the year 1915 on the resident population of Paris have resulted in the disappearance of smallpox In spite of the extraordinary shifting of the population due to the mobilization, and in spite of the fact that Paris offered a refuge to a considerable number of emigrants from invaded countries the capital has remained exempt from smallpox However, all the conditions favorable to the incubation of this disease were realized in the agglomerate mass of emigrants depressed in spirit and in body, as they were, the greater part of whom had not been recently revaccinated, and many of whom had never been inoculated at all On several occasions variolar infection has been introduced from outside without its becoming the focus of an epidemic A prolonged war without smallpox is a remarkable fact It proves the efficacy of the prophylactic measures that have been taken The honor for this result belongs to the city of Paris and its vaccine service The people of the city who have eagerly complied with the repeated appeals that the administration has made by means of posters and of advertisements in the press are also to be commended

In 1916 a single case of smallpox was discovered in Paris It was a case imported from Algiers The patient, an Arabian who had not been vaccinated in childhood arrived in Paris during the period of incubation He was placed in the Claude Bernard Hospital and died there. This Arabian was working in a factory employing 1 000 workmen and was living with his brother His fellow workmen and his brother were vaccinated immediately after the case was discovered, and no other case developed from it.

Death of Dr Charles Livon

Dr Charles Livon, director of the Ecole de medecine at Marseilles, died recently, aged 67 Dr Livon founded at Marseilles in 1893 the Institut antirabique. Since the beginning of the war he had been director of the auxiliary hospital of the Hotel Dieu at Marseilles

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Marriages

Capt Daniel Marsh Shewbrooks, M R. C., U S Army, to Miss Margaret F Sheldon Middlebury, Vt., at Kansas City, September 1

William Robbins White, M D, Providence, R I, to Miss Margaret L Wardle of Troy, N Y, at Ferrisburg, Vt, August 28

Lieut Charles Henry Laws, M R. C., U S Army, Elkins, W Va., to Mrs Lula Slaughter Booker of New York, July 26

Asst Surg Arthur Clark Dean, U S Navy, to Miss Minnie M Snyder, both of Philadelphia, August 29

Asst Surg Thomas V Murto, U S Navy, to Miss Elizabeth Ferguson of Norfolk, Va, August 25

Robert Lyle Motley, M D, to Miss Celia Mary Calcutt, both of Dyersburg, Tenn., August 29

Meritt Carlton Vaughan, M D, to Miss Ann Elsie Steger, both of Buffalo, recently

Patrick Joseph Hamill, M D, to Miss Mary Kenny, both of Jersey City, N J, August 27

Victor Hugo Lindlahr, M D, Chicago, to Miss Sarah Coker, Atlanta, Ga, August 22.

Earl Warren Keyes, M D., to Miss Sarah Sage Hollman, both of Cleveland, August 25

Theodore E. Ingram, M D., to Miss Mary Summy, both of Marietta, Pa., August 29

Alonzo Browning, M D, to Miss Hulda Oveson, both of Ogden, Utah, August 22

Deaths

Henry Nash Read, M D, Brooklyn, N Y, Long Island College Hospital, Brooklyn, 1870, aged 69, a Fellow of the American Medical Association, and a member of the Kings County Medical Society, and the Associated Physicians of Long Island, pediatrician to the Long Island College Hospital and the Sheltering Arms Nursery, consulting pediatrician to the Bar Ridge Hospital, died at his home, September 2

Edwin Taylor Robinson, M D, Philadelphia, University of Pennsylvania, Philadelphia, 1900, aged 45, a Fellow of the American Medical Association, at one time resident physician of the Philadelphia Hospital, a member of the Obstetrical Society, Philadelphia, Philadelphia Pediatric Society, and Pathological Society of Philadelphia, died in the Lankenau Hospital following an operation, September 3

Lewis Atterbury Stimson, M D, New York, Bellevue Hospital Medical College, New York, 1874, aged 72, a member of the Medical Society of the State of New York, New York Surgical Society and the American College of Surgeons, a veteran of the Civil War, consulting surgeon to the New York, Bellevue, St John's and Christ hospitals, died suddenly at his summer home in Long Island, September 17

William F Prather, M D, Dayton, Ohio, University of Cincinnati, Cincinnati, 1891, aged 55, formerly a Fellow of the American Medical Association, and a member of the Ohio State Medical Association, treasurer of the county medical society for many years, and for ten years secretary of the Dayton Academy of Medicine, died at his home, September 1, from chronic nephritis

Philip Wilfred Travis Moxon, M D., Brooklyn, N Y, Harvard University Medical School, Boston, 1901, aged 43, a Fellow of the American Medical Association, assistant physician of the Kingston Avenue Hospital, and assistant pediatrician to the Polhemus Clinic, reported to have committed suicide while demented, September 3

John Benjamin Roberts, M D, Atlanta, Ga, Medical College of the State of South Carolina, Charleston, 1867, aged 76, formerly a member of the Medical Association of the State of Georgia, superintendent of the Masonic Children's Home, Macon, Ga, and physician at the Soldiers' Home, Atlanta, Ga., died at his home, August 30

John C Otis, M D, Cincinnati, Ohio, Medical College of Ohio, Cincinnati, 1891, aged 60, for thirty-five years a member of the Cincinnati branch of the American Pharmaceutical Association, and for twenty years president of the Cincinnati College of Pharmacy, died, August 24, after an illness of four months

John McDonald Russell, M D, Pittsburgh, Western Pennsylvania Medical College, Pittsburgh, 1895, aged 45, formerly a Fellow of the American Medical Association, a member of the Pennsylvania State Medical Society and the Austin Flint Medical Society, died at his home, August 31

Wilbur C Rice, M D, Zephyrhills, Fla, University of North Carolina, Chapel Hill, N C., 1907, formerly a Fellow of the American Medical Association, and a member of the Ohio State Medical Society, drowned while bathing in Zephyr Lake, August 27

c **Hubbard North Bradley, M D**, Bay City, Mich, University
ar Michigan, Ann Arbor, 1905, aged 42, a Fellow of the
Hrican Medical Association, died in the Augustana Hos-
lieut Chicago, August 30, after an operation for an obstruc-
was h f the intestines

drugs **l Gordon Allen, M D**, Washington, D C, College of
sanatorns and Surgeons, Columbia University, New York,
was broud 38, past assistant surgeon, U S Navy, a Fellow
Drug Sterican Medical Association, died on the *Panther*,
conducting 5

forming dru**ley Kurz, M D**, Cook, Minn, University of
who were sen inneapolis, 1909, aged 32, a Fellow of the
boys, who werlical Association, a member of the Medical
eighteen and th State of Minnesota, died August 31, from

Change in Mar

has become meai**Woelffel, M D**, Willits, Calif, College of
torium at Dayton, rgeons, Keokuk, Iowa, 1897, aged 49, a
torium is now run fornia State Medical Society, for seven-
Shephard, the formoner of Willits, died in San Francisco,
board of directors, a

Refuse Incorporatiomes, **M D**, Knoxville, Iowa, Hahne-
time the petition for th Chicago, 1896, aged 47, a Fellow of the American Medical Association, member of the Iowa State Medical Society, died at his home, September 3

Solomon H Peck, M D, Oneonta, N Y, New York University Medical College, New York, 1862, aged 92, for more than forty-five years a practitioner in Ithaca, N Y, died at the home of his sister, September 2

John Henry Wilkins, M D, Victoria, Texas, Meharry Medical College, Nashville, Tenn, 1880, aged 63, for many years a colored practitioner in Victoria, died at Sherman, Texas, July 21, from arteriosclerosis

John L Overholt, M D, Columbus Junction, Iowa, University of Iowa, Iowa City, 1887, aged 55, a member of the Iowa State Medical Society, was found dead in his office, September 1, from heart disease

Herbert Harrison Cilley, M D, Long Beach, Calif, Rush Medical College, Chicago, 1892, aged 58, formerly a member of the Medical Society of the State of California, died at his home, July 16, from polycythemia

Delphin Bienvenu, M D, New Orleans, La, Tulane University, New Orleans, 1878, aged 81, died at the Charity Hospital, September 2, as the result of injuries received in an automobile accident

John Raymond Shank, M D, Flint, Mich, University of Michigan Homeopathic Medical School, Ann Arbor, 1884, aged 56, formerly a member of the Michigan State Medical Society, died at his home, August 25, from heart disease

Robert C Knode, M D, Gering, Neb, University of Nebraska, Omaha, 1898; aged 40, a member of the Nebraska State Medical Association, was instantly killed by the overturning of his automobile near Burns, Wyo, August 23

John James Fitzgerald, M D, Saginaw, Mich, Saginaw Valley Medical College, Saginaw, Mich, 1902, aged 50, a Fellow of the American Medical Association, died at his home, August 17, from cerebral hemorrhage

William Anson Forrester, M D, Cleveland, Bellevue Hospital Medical College, 1888, aged 52, was struck by a motorcycle at Baldwinsville, N Y., August 21, and died two hours later from his injuries

George Edward Craig, Evening Shade, Ark (license, Arkansas, nongraduate, Aug 18, 1903), aged 74, a Confederate veteran, died at the home of his daughter in Evening Shade, August 19

Patrick S Boland, M D, Carbondale, Pa, Illinois Medical College, Chicago, 1909, aged 44, formerly principal of the high school at Carbondale, died at his home, August 30, from heart disease.

Clarence M Conant, M D, Baltimore, New York Homeopathic Medical College, New York, 1873, aged 66, a clergyman of the Protestant Episcopal Church, died at his home, August 26

Thomas Elmer Grubbs, M D, Los Angeles, University of California, San Francisco, 1910, aged 29, a Fellow of the American Medical Association, died at his home, August 24

Samuel Wood Hunter, M D, Philadelphia, University of Pennsylvania, Philadelphia, 1868, aged 73, died in the University of Pennsylvania Hospital, Philadelphia, August 25

John Fremont Axtell, M D, Newton, N H, University of Vermont, Burlington, 1881, aged 61, a Fellow of the American Medical Association, died at his home, August 10

Henry Alexander Morrisson, Ladelle, Ark. (license, Arkansas, nongraduate, August, 1903), aged 44, died at Monroe, La, July 11, from the effects of a gunshot wound

George M Dayton, M D, Chattanooga, Tenn, Eclectic Medical Institution, Cincinnati, 1876, aged 68, died in the Bethesda Hospital, Cincinnati, August 28

Emerson K Brundidge, M D, Hazleton, Pa, Jefferson Medical College, 1880, aged 74, died in the Home for the Aged, Bala, near Philadelphia, August 25

William J Sharbaugh, M D, Altoona, Pa, Kentucky School of Medicine, Louisville, 1891, aged 68, died at his home, September 2

William Henry Reedy, M D, Bloomington, Ill, Rush Medical College, 1876, aged 69, died at his home, about August 22

John Wesley Clerke, M D., Green Cove Springs, Fla, University of Toronto, Ont, 1884, aged 72, died at his home, August 12

Henry Dinkel Heil, M D, Decatur, Ill, Rush Medical College, 1887, aged 59, died at his home, August 27, from heart disease

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

IDENTIFYING FAKE NEOSALVARSAN

Last week The Journal recorded the arrest of two individuals in New York City (Tomasses and Clements) charged with making and selling fake Neosalvarsan The extent to which this fraud has been carried makes it desirable that physicians should be able to distinguish between the false and the genuine article The Department of Health of the City of New York has furnished a table, which we publish, giving the distinguishing characteristics of the various lots of fake Neosalvarsan which were discovered by the inspectors of that department There were, as will be remembered, three different lots one that was made and sold by Tomasses and two others (Lots A and B) marketed by Clements The New York health officials suggest that as one of these fake products was put up in genuine tubes purchased from physicians it is important that physicians using Neosalvarsan should make it an invariable practice to destroy the tube after using the product It may not be out of place to warn physicians of the possibility that swindlers may put on the market fake imitations of Diarsenol and Neodiarsenol and other products identical with or similar to Salvarsan and Neosalvarsan

NEW YORK AND OREGON PERFORM A NATIONAL SERVICE

Filthy Advertisements Finally Driven from the Pages of the Police Gazette

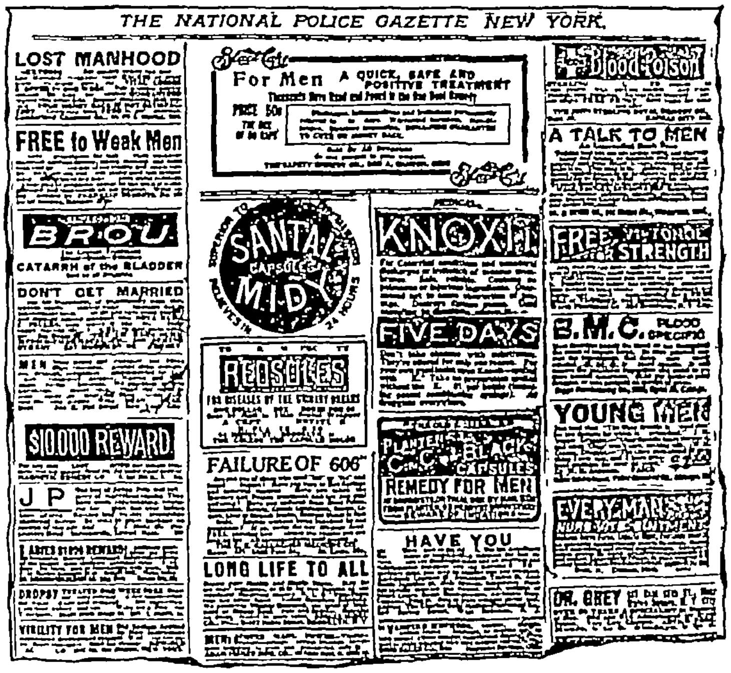
National laws are more effective and more to be desired than local laws on questions that affect the well-being of the country as a whole Yet it sometimes happens that the laws passed by a progressive state prove of distinct benefit to the nation About five years ago The Journal called attention to the case of North Dakota which enacted a law requiring all package goods to be plainly labeled with the net weight of the contents The law was a reasonable one and one to which no honest manufacturer should have objected Nevertheless, one of the largest biscuit manufacturers in the country withdrew its products from the state rather than comply with that law, presumably in the belief that the people of North Dakota would repeal the law, so as to be able again to obtain the biscuits of that particular firm

IDENTIFYING MARKS OF FAKE AND GENUINE NEOSALVARSAN

TOMASSES PRODUCT	CLEMENTS PRODUCT (LOT A)	CLEMENTS PRODUCT (LOT B)	THE GENUINE
Packing In packages of five tubes wrapped in waxed paper sealed with two muddy red seals the printing on which is somewhat indistinct. Altogether however, the package is a very close imitation of the genuine.	In single tubes only	In single tubes only	In packages of five tubes wrapped in waxed paper, sealed with two bright red seals on which the printing is distinct.
Tubes Made of aluminum embossing of lion trade mark on cap is indistinct but so cleverly done as to require comparison with the original in order to detect. If label of aluminum container is removed the collar for the cap is seen to be much less sharply impressed Dimensions of tube same as in genuine	Tubes made of tin (the cap, however of aluminum) and soldered instead of being spun in one piece Exposed part of tube painted with aluminum paint	This lot is put in genuine aluminum tubes which were purchased from physicians and therefore constitute the most dangerous of the three frauds thus far discovered (See below under Insert Circular and Label')	The line marking the collar for the cap is sharply defined
Contents of Tube Tube contains an insert circular, wrapped about the ampule A plug of absorbent cotton is always present, but the file and piece of corrugated paper are missing	The tube contains an insert circular, wrapped about the ampule There is *also* a plug of cotton but the file and piece of corrugated paper are *missing*	The tube contains *an insert* circular wrapped about the ampule. There is also a plug of cotton but the file and piece of corrugated paper are missing	The tube contains an insert circular wrapped about the ampule a small file a plug of cotton and the whole wrapped in a small piece of white corrugated paper
Label on Tube The label on the tube is a photographic copy of an *old* tube of the genuine and therefore bears the legend guaranteed by Farbwerke Hoechst Company under Food and Drugs Act, June 30 1906 Serial No 2783 A. The label is a trifle wider than the original and therefore usually slightly overlaps the bottom of the tube.	Same as that of Tomasses' product.	Genuine tubes, old style (see above)	Genuine product. Since early in 1916, no longer bears the printed guarantee under the Food and Drugs Act for the printing of this on the label is no longer permitted by the Federal Government
Serial Number All the product thus far discovered bears the shipping number A 25884 apparently *in print*	The shipping numbers apparently made with a rubber stamp are twice the size of those on the genuine	(See above)	The shipping numbers vary and are done by means of a numbering stamp
Insert Circular Size 8½ by 5⅓ inches Printed from reset type except the display heading, which is photographically reproduced. A number of typographical differences, including the misspelling of the chemical name (5th line below heading) and of the word toxicity (4th line from below, first page) make the detection of this fraudulent circular a simple matter The underscoring of the text on the first page extends beyond the left of the line of type.	Size 8½ inches by 5¼ inches i e., slightly larger than the genuine The circular however is photographically reproduced so does not contain any distinguishing marks	Same as in Lot A	Size 8¼ inches by 5⅜ inches Underscoring of text at bottom of first page is exactly as long as the printed lines of type. Toxicity is spelled correctly The chemical name 5th line below heading is spelled with a 'y —dioxy
Ampule This is evidently the work of an amateur The upper drawn-out end is invariably crooked	Closely resembles the genuine ampule.	Same as in Lot A	Genuine ampule always well formed Upper drawn-out end quite straight.
Label on Ampule Photographically reproduced this invariably bears the control letters E B U *in print*	Photographic reproduction bears the control letters 'V U H' *in print*	Same as in Lot A	Control letters vary, and are hand stamped
Contents of Ampule Color quite unlike the genuine It is dirty orange resembling the color of aristol	Color is light grayish yellow somewhat like that of precipitated sulphur	Same as in Lot A	Color is yellow like that of English mustard
Chemical Analysis Does not at all respond to tests for the genuine.	Does not at all respond to tests for the genuine.	Does not at all respond to tests for the genuine.	

The company made a mistake A number of independent concerns started up business within the State of North Dakota and sold biscuits under labels that complied with the law As a result, the biscuit company that had withdrawn its products after about a six years' absence reentered the state with its products labeled in accordance with the state law More important still, its products for sale in every state in the Union bore a net-weight label and the people of the whole United States were enabled to know just how much they were getting for their money For this they had to thank the State of North Dakota Since that time a federal net-weight law has been enacted

Now comes another example of the benefit the country receives from the action of enlightened states Four years ago Oregon passed a law making it a misdemeanor to publish any advertisement of the venereal quack type whether it applied to an individual claiming to treat venereal disease or to drugs or devices for the alleged cure of such diseases The law, of course, was fought by the quacks, but was upheld by the Oregon Supreme Court This law made itself felt as far away from the Pacific coast as New York City In that city there is published a sheet known as the *Police Gazette*, one of the distinguishing features of which was its large number of filthy and nauseating venereal advertisements


THE NATIONAL POLICE GAZETTE NEW YORK
LOST MANHOOD
FREE to Weak Men
BROU
CATARRH of the BLADDER
DON'T GET MARRIED
$10,000 REWARD
J P
VIRILITY FOR MEN
For Men A QUICK, SAFE AND POSITIVE TREATMENT
SANTAL MIDY CAPSULES
REDSULES
FAILURE OF 606
LONG LIFE TO ALL
KNOXIT
FIVE DAYS
PLANTEN'S C & C BLACK CAPSULES
REMEDY FOR MEN
HAVE YOU
Blood Poison
A TALK TO MEN
FREE VIM TONIC STRENGTH
B.M.C. BLOOD SPECIFIC
YOUNG MEN
EVERY MAN'S
NURO VITO OINTMENT
DR. GREY

Greatly reduced reproduction of the venereal advertisements appearing in a single issue of the *Police Gazette* previous to Sept 1, 1917, when the New York law prohibiting such advertisements went into effect

After the Oregon law went into effect it was found that the copies of the *Police Gazette* offered for sale in that state had been "denatured" in that the "weak men" advertisements were deleted In other words, the *Police Gazette* got out two editions, one still reeking with filthy advertisements and the other, which it called its "International Edition," with this particular type of advertisement omitted The "International Edition" also was the one sold in Canada

On Sept 1, 1917, the state of New York put into effect a law very similar to that in Oregon This hit the *Police Gazette* where it lives and, as a result, this periodical, as now published, while still containing some quack and nostrum advertisements—other than venereal—no longer smells to high heaven As a matter of interest, we give a list of advertisements that ran more or less regularly before the New York law went into effect

Santal Midy "Relieves in 24 hours"
Redsules "Sent by mail in plain sealed wrapper"
Turko Giant Ointment "Men made strong and vigorous"
J P "Restores lost vitality"
Vacuum Massage "Acquire manly power—vitality"
Old Dr. Welch "Free treatment, guaranteed for all the worst forms of blood poison"
Dr T Pierce "Sexoid restores lost powers"
Skeen's Painless Remedies "Stricture treatment guaranteed"
Planteen s C & C. "Remedy for Men"
Knoxit "Relieves in five days"
Dr Rowe "Varicocele, stricture and urinary diseases"
R L G Vim Tonic "Regain your health and lost manly vigor"
Sex Tonique "Quickly relieve any case of lost manhood"
Dr. Franklin Roberts Prescription "Free to Weak Men"
H G C "Relieves within three days"
Salvar "Quick and perfect results without danger and at little cos."
Anti Gonic Tablets "The best preventives of stricture, cystitis hydrocele"
Magnetic Remedy Co "$10,000 Reward for any case of Lost Manhood our simple treatment will *not* restore"
Dr J Henderson "Stricture and discharges successfuly treated"
W F Young, P D F "Varicocele, Hydrocele, etc., promptly relieved with inexpensive home treatment"
Sterling's Royal Remedy "Blood Poison Enables you to treat your self with positive success"
Pabst's Okay Specific "Is a 'dead shot' for the diseases for which it is prescribed"
Dr. Meyers Co "We cure varicocele, stricture, chronic, nervous, blood, skin, kidney and bladder diseases"
B M C "Is a blood specific"
Vi Tonol Capsules "The strength and vigor builder"
Dr Grey "Over thirty years a specialist in the diseases of men"
New Old Vacuum Co "Virility for men" "Strengthens, develops and enlarges"
Dr Southington's Remedy Co "Ladies $1,000 Reward" "Safely relieves some of the longest, most obstinate, abnormal cases in 3 to 5 days"
Injection Brou "The logical treatment Direct—Quick—Effective"
Black Caps "Discharges, inflammations and irritations permanently relieved in two to five days"
Nuro Vito Ointment "Makes weak men strong and strong men stronger"
Nova Nura Capsules "Wait until you have cured yourself and regained healthy manhood with Nova Nura Capsules, then marry if you want to enjoy happy married life"
Taylor's A S "A positive relief for Blood Poison in any or all its stages"
Mi Vo "Quickly Restores Lost Vim, Vigor and Vitality"

No longer will this putrid mass be scattered broadcast over the country through the agency of the *Police Gazette* That publication's advertising pages have finally rendered to legislative pressure a tribute to decency which they were apparently unwilling to give voluntarily

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Infant Mortality —The New York Milk Committee has just completed a survey of the death rate among babies in the larger cities of the United States They find that the infant death rate has been reduced 11 per cent since 1910 This reduction has been made among cities of 100,000 population or over The smaller cities have not done so well The reduction in cities between 50,000 and 100,000 population is only 2 per cent, while those under 50,000 show an increase of 5 per cent The statistics of 150 cities, representing one fourth of the population of the United States, were studied, and include records of 670,000 living births and 68,000 deaths under 1 year of age for the year 1916, making an infant mortality rate of 100 baby deaths for each thousand births registered The general reduction since 1910 is 9 per cent The lowest infant death rate in the country in 1916 among cities of 100,000 or over was in Portland, Ore, with a record of only 55 baby deaths per thousand births Fall River, Mass, has the highest rate, 163 In the second group of cities, those having a population of from 50,000 to 100,000, Hoboken, N J, has the low rate of 77 against San Antonio, Tex, which has the high rate of 246 Among cities having a population of 50,000 and under, Brookline, Mass, leads with the low rate of 32 against Austin, Tex, whose rate was 182 Though there has been a general decrease for all the cities since 1910, the reports for 1916 compared with those of 1915 are not so encouraging Only 13 of the larger cities showed a decreased death rate for 1916 over that of 1915 New York leads in the decrease for this period, having an infant mortality rate for 1916 of 93 per thousand births Other cities in the group showing decrease were Philadelphia, 101, New Orleans, 96, Washington, 105, Jersey City, 102, Rochester, 82, St Paul, 67, Denver, 84, Portland, 55, Oakland, 65, Scranton, 85, Grand Rapids, 115, Spokane, 57, and Albany, 96 The cities which showed an increase included Chicago, St Louis, Pittsburgh, Detroit, Buffalo, San Francisco, Milwaukee, Cincinnati, Newark, Los Angeles, Minneapolis, Indianapolis, Providence and Louisville

Correspondence

A SELECTIVE DRAFT OF PHYSICIANS BASED ON CLASSIFICATION

To the Editor —As soon as the medical profession of the United States appreciates that no stigma is connected with a selective draft of physicians based on a previous careful classification, just so soon will genuine medical preparedness be realized in this country The volunteer system is dead Virile men will ever regret its passing and yet it must be admitted that it was undemocratic and utterly inadequate We are as a people slowly but surely coming to a realization that the right of suffrage is inalienably connected with the duty of national service and that this service can only be economically and justly directed by the federal government Only when there exists a willingness on the part of the individual to sink all personal dictates to the will of the federal government can a nation be said to have dedicated itself to a war

It is said that enough physicians have volunteered to care for the first million increment of our National Army Will it be possible to obtain similar quotas for the second and third million, by the same methods that have been employed in the past? I emphatically do not think so Have we obtained through the volunteer system the best qualified men for the important duty of caring for our sick and wounded? Again emphatically no A fair proportion of the physicians who have volunteered are men who have been attracted to a new life through a failure to succeed in their old The Medical Reserve Corps today contains too many men over 40 and too few under 30 Many communities throughout the country have been stripped of their physicians whereas from many other none have gone Do these facts show that the medical profession is performing the best kind of national service?

The profession has failed so far to realize one basic principle connected with its part in this war Responsibility for the aggressive prosecution of the war lies more heavily on the medical profession than on any other The profession under the direction of the regular officers is the Medical Corps of the Army To every regular Medical Corps officer, there are today sixteen reserve corps officers in the service of the United States And this proportion will ever increase In order to insure the obtaining of sufficient physicians for the continuation of the war, regardless of its length, it seems to me imperative that a selective draft be instituted The greatest service that the profession could now do the country would be to self-impose such a draft, based on a competent classification There certainly can be no stigma attached to placing in the hands of the federal government the power wisely to select those men that it needs for the successful prosecution of the present war

Richard Derby, Major, M R C,
Camp Upton, Yaphank, L I, N Y

WOMEN PHYSICIANS AND THE WAR

To the Editor —When The Journal A M A. and the *California State Journal of Medicine* had published calls to physicians to offer their services to the government by enlisting in the Medical Reserve Corps, when Dr T W Huntington of San Francisco, a member of the Advisory Commission of the Council of National Defense, had in various places addressed mass meetings of physicians, strongly urging them to volunteer, and when a personal letter of the same tenor had been sent to each member from the secretary of county medical societies, several women members of the medical profession in California responded to these appeals in some cases making use of the application blanks provided in The Journal, etc Some papers went to the War Office at Washington, D C., and some (at least one) to the specified local headquarters

These elicited the uniform reply, variously worded, that the War Department was not yet authorized to accept women medical officers.

Realizing that women physicians are, as a whole, freer than men from family ties and dependents, and knowing how extensively they have been called on during the war in Europe, sixty-five women physicians of San Francisco and vicinity met, June 22, in the rooms of the San Francisco County Medical Society and adopted the following resolution

> Whereas Women physicians in Great Britain France, Russia, Serbia, Austria and Germany have performed invaluable services during the present war, services which have been signally recognized by their respective governments and
>
> Whereas In the United States there are large numbers of women physicians fitted and equipped to render equally valuable service and to render service as efficient and valuable as can be rendered by men physicians, not only as anesthetists radiographers and hospital and laboratory directors, but also as surgeons now, therefore, be it
>
> *Resolved* That we urge upon the Secretary of War that the services of women physicians be utilized to the fullest extent by the United States War Department in the present war, that opportunities for medical service be given to medical women equal to the opportunities given to medical men both as members of the staffs of base hospitals and otherwise and that the women so serving be given the same rank, title and pay given to men holding equivalent positions

As an earnest of good faith and a guarantee that there will be women ready to serve when the government is ready to use them the following petition was signed by about thirty present

> We the undersigned offer our services to the War Department as members of the Medical Reserve Corps and will serve wherever sent, providing that opportunities for medical service be given to medical women equal to the opportunities given to medical men, both as members of the staffs of base hospitals and otherwise, and that women so serving be given the same rank, title and pay given to men holding equivalent positions

Since then the number of signatures has increased to fifty-six from the entire state In view of the fact that the United States government is desirous of profiting by the experience of the countries that have been at war, it is hoped that as soon as this omission is called to the attention of the profession as a whole and of the War Department the regulations will be so modified as to make it possible to commission medical women

Elsie Reed Mitchell, M D, San Francisco

A FIELD EXPERIMENT ON POISON-OAK PREVENTION

To the Editor —On a hot day, last July, without taking any precautions against my old enemy, poison-oak (*Rhus toxicodendron*), I climbed up a steep trail which was overgrown by tall briers and poison-oak bearing green leaves The trail had fallen into disuse, and the wild growth obscured the path and at times reached above my head I had to crowd my way through it, sometimes crawl under it, and constantly brush it aside Finally, I lay down in the brush at the top of the cliff for about one hour surrounded by the poisonous leaves Naturally, the poison-oak came into direct contact with my hands wrists and face. I was well aware of my danger, but had no means to protect myself save that I avoided rubbing my face with my hands

After an hour I walked a mile to my automobile and then drove 4 miles to the hotel, where I washed my face, hands, arms and neck (but not my hair) with soap and water I avoided washing off all the soap, desiring to protect myself against the poison that doubtless clung to my clothes Then I drove for three hours and a half, about 90 miles, before reaching home, where I immediately took a complete soap and hot water bath and made an entire change of clothing

I am so very susceptible to the poison that I awaited the outcome with much interest Ordinarily, without precautions, I should have been severely poisoned on the face, neck, ears, hands and legs In this instance, the only poisoning that occurred was a little itching on the ankles, which had been very dusty and had rubbed much against the brush

This result is quite in accord with laboratory experiments which I reported in the *Archives of Internal Medicine* in February, 1913 Some hours at least are usually required for the *Rhus* poison to penetrate sufficiently to cause dermatitis If the poison is washed off before it penetrates, dermatitis is avoided

The foregoing field experiment proves that *Rhus* dermatitis can be avoided by simple means, namely, by removing the poison within a few hours Many variations of the method immediately suggest themselves Soap may be carried along to be used at each stream crossed, liquid soap might be carried in a bottle and applied a few times to exposed skin surfaces The time necessary for the poison to penetrate can be much lengthened and the toxicity much decreased by vering the skin with a film of cottonseed oil.

t is thus clear that with a little precaution the plants of is poisonous family can be defied As a detail of preventive measures the following is recommended

Before exposure, apply cottonseed oil, or soapsuds, to all exposed skin surfaces, and use soap in some form every hour during exposure

As soon after exposure as possible, take the following precautions

Take a complete soap and hot water bath, not neglecting the hair

Change all clothing, including hat and shoes

Avoid contact with clothing or other articles that have been exposed to the poison, until they have been freed from the poison

Edward von Adelung, M D, Oakland, Calif

THE ROLL OF HONOR

To the Editor —The communication from Dr Edward von Adelung, The Journal, Sept 8, 1917, p 843, stressing the equal or greater financial sacrifice of the small income practitioner as opposed to the very large income practitioner in responding to the call to the colors is interesting and correctly estimates the situation However, is a financial sacrifice the great sacrifice made?

The medical man who closes his office, abandons his local practice, and thus automatically stops all local revenue, in many instances with certain unavoidable "overhead" expenses still going on, makes a patriotic sacrifice for his country This hardship can be measured in dollars and cents

The very great obstacle to the medical man is this financial uncertainty, here comes about the *impasse* in his mind that accounts for the hesitation in volunteering Can both ends meet under the proposed regime? The very great sacrifice, however, that he makes cannot be measured in dollars and cents It consists of his own willingness to leave home and family for an indefinite period, to go to any part of the earth when ordered, to encounter all of the uncertainties of military life and finally to submit entirely to the risks and exigencies of the great war Here is the real sacrifice voluntarily being made by thousands of our fellows, and that cannot be measured by the dollar mark

John C. Silliman, M D, Palo Alto, Calif

Queries and Minor Notes

Anonymous Communications and queries on postal car be noticed Every letter must contain the writer's name a but these will be omitted, on request.

MENCIÈRE'S IODOFORM PERUVIAN BALSAM MI

To the Editor —Please furnish me the formula for Mencie form Peruvian balsam mixture

A G Wilde, M D

Captain M C, U S Army, Base Hospital No 5, Nogales,

nswer —The formula differs as to whether it is for a spray in emergencies—as when the wounde in large numbers and every minute count it is to be used as a permanent dressing For e mixture is made with 10 gm each of iodofo ucalyptol and Peruvian balsam, 100 gm alcol 1,000 c c Cheyrou says of this (Abstract 5 April 28, 1917, p 1294) that after the surgica und, this fluid is sprayed forcibly into all the ities of the wound It takes only a few seconds, the hands do not come in contact with the wound, and only a small amount of the fluid is used while the powerful disinfectants ward off complications The dressing does not have to be changed until the man reaches the base hospital

a
hig
tisen
York
Santal
Redsules
Turko Gng
J P 'Res
Vacuum Mas
Old Dr. Welc
of blood pois
Dr T Pierce "S
Skeen's Painless R
Planteen's C & C

The formula for the permanent dressing was given in abstracts printed in The Journal, March 6, 1915, p 861, Oct 16, 1915, p 1407, and Dec 4, 1915, p 2040 Solution A, iodoform, 10 gm, guaiacol, 10 gm, eucalyptol, 10 gm., balsam of Peru, 30 gm, ether, 100 gm, to be used to soak the wicks of gauze or to be injected into the sinuses with a Roux syringe If hydrogen peroxid is lacking, or if one is prodigal, Solution B may be used for washing the wound before embalmment. Solution B differs from A only in the quantity of ether, which is 1,000 gm instead of the 100 of Solution A In case of idiosyncrasy or intolerance after a few days' treatment (which is exceptional), the iodoform is omitted Directions for use are given in the abstracts

Delestre has also found the Menciere mixture useful in the base hospital for the permanent dressing of wounds (*Progrès medical*, April 21, 1917, p 133) He applied it in 200 cases of severe wounds, *grands blessés*, first clearing the wound of all crushed tissues and then washing it clean with water containing guaiacol and benzoic acid (he does not give the proportions), then "embalming" the wound with the Menciere mixture, raising the edges of the wound with Kocher forceps for four or five minutes to form a well He said that he had seen this always prevent the development of germs in the wound and admirably arrest beginning infections, even grave ones, while the wound cleaned up and healed over remarkably fast "In short," he concluded, "I am convinced that the Menciere treatment will soon win numerous adherents and realize at the sam time economy in time, in personnel and in exis

POLYCHROME STAIN BLOOD

To the Editor —1) I note a
formula for blo ed to be
given clearly Nothing
is said ab to be
added, and in the
mixing of
2 Where is

A M

Answer.—1 The description of the procedure woul been clearer if the following additional paragraph had been cited "The powder obtained by drying out the mixture is a methylenazureosin, of a dark violet, and weighs about 0 3 or 0 5 gm It is dissolved in methyl alcohol and neutral glycerin in the proportion of 0 5 part of the methylenazureosin to 150 parts each of methyl alcohol and neutral glycerin The extremely light powder is ground carefully in a mortar, and the alcohol is added in small amounts The powder once dissolved in the alcohol is filtered, and then the glycerin is added The solutior ined keeps in a cool dark place for a long time"

We will lend the *chives* on re 5 cents

GIN"

To the Editor —C al article t Nikalgin"
Have you any info ubject? nostrum
stuff

nswer —"Nik
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NEW JERSEY Trenton Oct 16-17 Sec Dr Alexander MacAlister 438 E State St. Trenton

NEW MEXICO Santa Fe Oct. 8 Sec Dr R E McClanahan East Las Vegas

NEW YORK Albany Buffalo New York City and Syracuse Oct 2 5 Chief Examinations Division Harlan S Horner State Education Bldg Albany

OKLAHOMA Oklahoma City Oct. 9 10 Sec. Dr Ralph V Smith, 502 Daniel Bldg Tulsa

PORTO RICO San Juan Oct. 2 Sec Dr M Quevedo Baez, San Juan.

RHODE ISLAND Providence Oct 4 5 Sec. Dr Byron O Richards, State House Providence

UTAH Salt Lake City Oct 1 2 Sec. Dr G F Harding Templeton Bldg Salt Lake City

WYOMING Laramie Oct. 10 12 Sec Dr H E. McCollum Laramie.

Michigan May Examination

B D Harison secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Detroit May 29-31, 1917 The examination covered 14 subjects and included 100 questions An average of 75 per cent. was required to pass and in no subject was the percentage to be less than 50 Of the 59 candidates examined 57 passed and 2 failed The following colleges were represented

College	Year Grad.	Per Cent
PASSED		
Atlanta Medical College	(1915)	79 1
Chicago College of Medicine and Surgery	(1916)	86 3
University and Bellevue Hospital	(1915)	87 5
Detroit College of Medicine and Surgery (1916) 80 3	(1917)	78 1
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82 6 82 7 82 8 83 4 83 7 83 8 83 9 84 5 84 9 85 1		85 2
85 3 85 3 85 7 85 8 86 86 1 86 1 86 2 86 3 86 4 86 8		86 9
87 87 2 87 3 87 5 87 6 88.2 88.2 88 9 89 5 89 6 91.2		
Johns Hopkins University	(1917)	84 4
Rush Medical College	(1917)	87 4
University of Arkansas	(1909)	80 2
University of Michigan Medical School	(1916)	84 9
University of Toronto	(1917)	82.4
Western University Faculty of Medicine	(1912)	89.2
FAILED		
of Medicine and Surgery	(1917) 76	78 5

igan June Examination

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1917 The examination covered

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College	Year Grad.	Per Cent.
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University of Michigan		
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86 7 86 8 87 1 87.2 87 5		
89.2 91 3 92 8		
University of Oklahoma	(1916)	81 2
University of Pennsylvania	(1916)	91 1
Womens Medical College Pennsylvani	(1915)	91 6
FAILED		
University of Michigan	(1917)	79 4

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College		Year Grad	Reciprocity with
American Medical Missionary College		(1907)	Illinois
Atlanta Medical College		(1916)	Georgia
Baltimore Medical College		(1911)	Maryland
Baltimore University		(1899)	W Virginia
Baylor University		(1913)	Texas
Beaumont Hospital Medical College		(1900)	Missouri
Bellevue Hospital		(1876)	Penna
Chicago College of Med and Surg	(1913) Illinois	(1915)	Illinois
College of Physicians and Surgeons		(1914)	Maryland
Detroit College of Medicine and Surgery		(1917)	Ohio
Eclectic Medical College		(1915)	Ohio
Hahnemann Medical College	(1906) Illinois	(1915)	Illinois
Howard University		(1904)	Georgia
Illinois Medical College		(1903)	Indiana
Iowa College of Physicians and Surgeons		(1897)	Iowa
Johns Hopkins Medical School		(1907)	Maryland
Louisville Medical College		(189?)	Oklahoma
Marquette University		(1916)	Wisconsin
Medical College of Ohio	(1884) Indiana	(1886)	Ohio
Northwestern University		(1915)	Illinois
Rush Medical College	(1915) Illinois	(1916)	Illinois
St Louis College of Physicians and Surgeons		(1890)	Missouri
St Louis University School of Medicine		(1916)	Missouri
Starling Ohio Medical College		(1913)	Ohio
Syrian Protestant College		(1886)	Missouri
Tufts College Medical School		(1903)	Wisconsin
University of Illinois (1905) Illinois	(1914) Illinois	(1914)	Illinois
	(1915) Illinois	(1916)	Illinois
University of Michigan		(1908)	Georgia
University of Michigan Homeopathic Medical School		(1888)	Ohio
Univ of Louisville (1911) Missouri	(1913) Indiana	(1916)	Kentucky
University of Nashville		(1899)	Kansas
University of Tennessee		(1886)	Kansas
Washington University	(1908) Missouri	(1911)	Missouri
Vanderbilt University		(1916)	Tennessee

Book Notices

THE ROENTGEN DIAGNOSIS OF DISEASES OF THE ALIMENTARY CANAL. By Russell D Carman M.D Head of Section on Roentgenology Division of Medicine Mayo Clinic and Albert Miller, M D, First Assistant in Section on Roentgenology Division of Medicine, Mayo Clinic Cloth Price $6 net Pp 558 with 504 illustrations Philadelphia W B Saunders Company 1917

The authors have selected and arranged in a systematic manner the facts of Roentgen diagnosis which they believe to be worth while, and especially those which they have verified by experience with a large amount of material Extensive descriptions of apparatus are omitted but detailed protocols are given of the findings in a considerable number of cases The authors give freely of their experience, and even record their mistakes because of the lessons they may teach The unusually large number of cases examined by the authors, their well known ability, and the close cooperation between the various departments of the clinic with which they are connected naturally give their statements weight which they would not have otherwise For instance "In the detection of cancer of the stomach, the Roentgen rays take precedence over all other methods In the Mayo Clinic, 95 per cent. of gastric cancers have given distinct roentgenologic signs of their presence, a percentage not approached by any other process of examination" This surely is a strong statement but the evidence presented seems to warrant it The authors insist that the roentgenologist should be acquainted with the principal clinical facts, and that these should at least grossly correspond to his own findings On the basis of their own statistics, it is stated

nine tenths of the ulcers of the stomach give distinct

genologic indications of gastric disease, and in

whelming majority of these the Roentgen s

used is actually sick, and the presumptive of

is to be used might not be present be

ing the prescription, and might not

physician at all, or might be the

The court is also of the view

these were often present, but to find shadows that seemed definite and characteristic Likewise, in lesions of the gall-bladder without discoverable stones, the Roentgen ray can only exceptionally furnish decisive evidence Duodenal ulcer they believe can always be diagnosed by the Roentgen ray More than 2,300 cases have been proved by operation, and a great number have been diagnosed but no operation performed With regard to the possibility of diagnosing chronic appendicitis, the authors make the following rather significant statement "On the whole, the value of the Roentgen signs of appendicitis appears to depend not only on the intensity of the examiner's endeavor, but also, to some extent, on the degree of his enthusiasm"

The conclusions are based on facts observed in many cases, they will be interesting reading for the general practitioner The book is a plea for careful, thorough, conscientious roentgenography that will do much to establish Roentgen diagnosis as worth while

Advanced First Aid Instructions for Miners A Report on Standardization By a Committee of Surgeons G H Halberstadt, A F Knoefel, W A Lynott, W S Rountree and M J Shields Department of the Interior, Bureau of Mines Paper Price, 20 cents Pp 154, with 65 illustrations Washington Government Printing Office, 1917

This pamphlet is the result of an evolution coinciding with the progress of first aid teaching among the employees of the mines of the country At first this was the work of individual physicians in the anthracite region of Pennsylvania, in Alabama and in Indiana, then had the cooperation and assistance of the Red Cross, and finally was taken over as a function of the Bureau of Mines of the Department of the Interior The pamphlet was prepared by a committee of surgeons, including those first interested in the subject, and gives the essence of their practical experience in the principles of first aid work that may be placed in lay hands Organization, equipment, a bit of anatomy and physiology, methods of meeting emergencies, applying first aid dressings and apparatus, handling the injured, what to do and what to avoid, are all clearly and concisely set forth The usefulness of the pamphlet may be said to extend beyond its originally intended function

Glaucoma A Handbook for the General Practitioner. By Robert Henry Elliot, M D, B S, Sc D Cloth Price, $1 50 net Pp 60, with 12 illustrations New York Paul B Hoeber, 1917

The author states that he has in manuscript form a much more comprehensive volume on this subject, but the war makes its publication impossible at this time This monograph, which will serve as an epitome of the larger book, is especially adapted for the general practitioner, because it touches only on the important practical phases of glaucoma and the most approved methods of dealing with this disease. The various theories and questions still in dispute, the scientific investigations into its etiology, etc., are to be discussed fully in the other publication The general practitioner will find in this monograph a safe guide in the diagnosis, and descriptions of accepted operations as well as the general treatment of glaucoma

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Hamstringing the Child Labor Laws—"Already in Connecticut, Minnesota, New Hampshire and Vermont no time has been lost in repealing or suspending the operation of the child labor laws Everywhere the case is the same There is a clamor to cut the school hours and the school months The farmer declares he cannot get along without child labor The truck gardener echoes the call The makers of munitions say they need *children in their plants* The canners assert that without children they cannot put up the great amount of food products the country needs The vast percentage of these claims are false They are not made in good faith They are founded in greed They are inspired by a desire for cheap labor They are marked by an utter callousness to the fate of the instruments they seek to emplo - iodoform, ...rian balsam, 100 gm alcohol This note, taken from the ...heyrou says of this (Abstract 51, indication of the diff... 28, 1917, p 1294) that after the surgical social legislation ...d, this fluid is sprayed forcibly into all the facturing or othe...ties of the wound It takes only a few

Social Medicine, Medical Economics and Miscellany

Medicopharmaceutic Ethics

At a conference held in Melbourne between representatives of the Victoria Branch of the British Medical Association and representatives of the Pharmaceutical Society of Australasia, the Pharmacy Board and Pharmaceutical Defense Ltd, the following rules of practice, among others, were adopted The rules are so common-sense that they are worthy of consideration in this country

1 *Prescriptions—Doubtful Interpretations*—In cases where there is some doubt regarding the interpretation of any prescription, it shall be the duty of the pharmacist dispensing the same to communicate with the prescriber if possible. It is preferable that such communication should be in writing In cases where it is necessary to telephone to the prescriber, care should be taken to see that the conversation is as private as possible

2 *Correction by Prescriber*—The prescriber in such a case will recognize that the pharmacist is simply performing what is an important part of his professional duty, and will at once cooperate with him in the interests of his patient He will correct or confirm the prescription If a correction is necessary, he may request the pharmacist to retain the prescription, and will forward to him the corrected one As far as possible, verbal corrections should be confirmed in writing

3 *The Attitude of Prescriber and Dispenser* should be one of mutual respect and cooperation

4 *Unusual Characteristics*—In cases where a prescription contains (*a*) an incompatibility, (*b*) an unusually large dose, (*c*) a dangerous dose, or possesses some other characteristic of an unusual nature, the prescriber shall indicate that such peculiarity is intended, and is not inadvertent, by underlining that particular part of the prescription, and initialing the same in the margin

5 *Where Prescriber Cannot Be Consulted*—Where a pharmacist is doubtful of the interpretation of a prescription, and it is not possible to consult the prescriber, he shall, after careful consideration, modify the prescription in accordance with what he believes to be the intention of the prescriber He should, if possible, subsequently communicate with the prescriber by letter, and inform him of what he has done. Care should be taken to see that such discretion, when exercised, does not interfere with the therapeutic value of the medicine

6 *Modifications to Be Noted*—Where a pharmacist finds it necessary to modify a prescription, under paragraph 5, he should make a marginal note on the prescription indicating the course he has adopted in dispensing the prescription The marginal note should be as brief as possible

7 *Prescribing by Telephone*—When prescriptions are dictated by telephone, the following rule should be observed The prescriber should first write out the prescription, and then read it through the telephone to the dispenser He should request the dispenser to read to him the prescription as taken down, and should, as soon as possible, forward the original prescription to the pharmacist either by post or by the patient

8 *Criticism Deprecated*—It is undesirable that a prescriber should adversely criticize a pharmacist unless he is guilty of some offense in his calling The pharmacist on his part should refrain from discussing with the patient the prescriber or the merits of his prescription Matters relating to professional fees or the prices charged for medicines should not be discussed with patients

9 *Unsigned Prescriptions*—When a prescription is received with the "usual signature," the pharmacist should ascertain from the patient the name of the prescriber, and, if possible, submit the prescription for his signature before dispensing it so as to relieve the prescriber as well as himself from the risk of penalty The use of a rubber stamp in lieu of the ...riber's written signature should be avoided

To the Editor— ... *of Prescriptions*—When it is desired that quantity ... hould not be repeated, the prescriber should

Answer—The ...scription, "Not to Be Repeated," or "To Be that has been prop...nly," or any specified *number* of times "c c." to express th...h directions are given, the pharmacist who dispenses the prescription should indorse the prescription as follows: Supplied (here insert date and pharmacist's signature).

11. *Spoonfuls' to be Abandoned.*—With the object of securing greater accuracy in dosage the use of the words teaspoon, dessertspoon and tablespoon in the directions on a prescription should be discouraged. Prescribers should write the dosage in drams or ounces, and patients should be advised to measure the doses in a measure glass.

Medicolegal

Power of Lumber Company to Contract for Services of Physician

(Jackson Lumber Company vs. Trammell (Ala.), 74 So. R. 469)

The Supreme Court of Alabama says that plaintiff Trammell sought to recover for services rendered as a physician to the employees of the defendant company, under a contract for a fixed salary. The defendant as one of the defenses interposed pleaded that it was a corporation and was not authorized by its charter so to contract for the services of a physician. The defendant was engaged in the operation of a sawmill. The court judicially knows, as it is a matter of common knowledge, that in such an enterprise much machinery is used, that the employment of laborers is essential to its operation, and that accidents are likely to occur. Without laborers the corporation would be powerless to carry out the purposes of its creation. It is therefore necessarily interested in the welfare of its employees. Much depends on their health and their contentment in the service, and to conserve their physical comfort tends to their efficiency, and the greater their efficiency the greater the profits to the defendant company. It could hardly be denied that a private corporation engaged in the manufacture of lumber could, if it saw fit, erect houses for the use of its employees and surround them with such sanitary conditions as would tend to promote their general and physical welfare, even though its charter might contain no such provisions. These are matters which relate to what might be termed the "internal management" of the corporation, with which, in the absence of fraud or unfair dealing, the courts as a rule do not interfere. The employment of a physician to look after the health of the employees is but in line with the suggestions above made, and concerns one of those questions of internal management which the court thinks may be fairly incidental to the objects of the corporation's creation. By contracting for such medical attention the corporation is not engaging in any business other than that expressly authorized in its charter, but merely adopts this as one of the means of executing its express powers (and as to such means the corporation must be held to have a right of reasonable choice), which the court thinks can be said in this instance to have had a very natural and reasonable tendency to aid in the accomplishment of the purpose for which it was created. But, on a rehearing the court reverses a judgment obtained by the plaintiff, and remands the cause for a new trial because of improper argument by counsel for the plaintiff in directly or indirectly calling the attention of the jury to the fact that the plaintiff was a poor man, while the defendant was a big corporation, a judgment against which could not hurt it.

Validity of Ordinance Restricting Location of Private Hospitals

(Lawrence vs. Nissen et al. (N. C.), 91 S. E. R. 1036)

The Supreme Court of North Carolina holds valid an ordinance which states that the construction, operation or maintenance of a hospital, or place or institution of like character where sick or diseased persons are treated or surgical operations performed for pay within the corporate limits of the city of Winston-Salem and within 100 feet of a building or house used or occupied as a residence, is declared to be a nuisance or injury to adjacent property, and to the general public, and is prohibited. The court says that the enactment of such an ordinance is plainly within the powers conferred by the legislature when the aldermen are vested with power, not only to grant building permits, but also to prohibit the construction of buildings or structures that may be a nuisance or injurious to adjacent property. Having the authority to enact the ordinance, the reasonableness of it is not a matter for the court. Neither is it necessary that the court should find that conditions actually exist that require the enactment of the ordinance. It is sufficient if a state of facts could exist which would justify it. The ordinance is preventive in character and intended to protect the comfort, health and safety of the citizens. A hospital may not be a nuisance per se, or in and of itself, but it may become such because of its location, or by reason of the manner in which it is conducted. The objection was made to the ordinance that it was unduly discriminative, in that it applied only to hospitals established for profit, and not for charity, but the court is not impressed with the force of the objection. The discriminations which are open to objection are those wherein persons engaged in the same business are subjected to different restrictions, or are held entitled to different privileges under the same conditions. It is only then that the discrimination can be said to impair that equal right which all can claim in the enforcement of the laws. The establishment and conduct of hospitals for pay is now a recognized and established business. It is rare to find a city or town of any size without such institutions. These hospitals are generally established, owned and conducted by members of the medical profession for their own convenience and profit. No one is engaged in the business of establishing and conducting hospitals for charity. There are public hospitals in large cities with charity wards as well as pay wards in them, established and conducted by the municipal government or by trustees of some endowment fund donated by philanthropy, but the establishment of charitable hospitals is in no sense a recognized business. For this reason it is probable that the board of aldermen did not consider it necessary or important to embrace charity hospitals within the ordinance, deeming the erection of one by some local philanthropist a remote possibility, which could be attended to in the future if application for a building permit should be made.

Construction of Statute with Reference to Prescribing Intoxicating Liquors

(State vs. Morton (S. D.), 162 N. W. R. 155)

The Supreme Court of South Dakota reverses a judgment of conviction of the defendant, a practicing physician, who was charged with furnishing to a named person a prescription for intoxicating liquor to be used as a beverage, and not for medicinal purposes. The prescription was for one-half pint of brandy, and the defendant testified that his directions were to take an ordinary wine glass of it three times a day ten or fifteen minutes before eating. The court says that it is of the view that the evidence was wholly insufficient to show the prescription was issued for intoxicating liquors to be used as a beverage in violation of Chapter 123, Laws of 1905. Under that statute a physician may sell or give a prescription for intoxicating liquors in cases of actual sickness, and when the person to whom the prescription is given is a patient of the physician and is afflicted with some disease, and his condition is such that, in the opinion of the physician, the taking by such patient of intoxicating liquors would be beneficial to him. The court is of the view that Section 1 of Chapter 123 was intended to apply when some one other than the patient himself makes application to the physician for the prescription. In this case the physician must ascertain whether or not the person by whom the liquor is to be used is actually sick, and the sick person by whom the liquor is to be used might not be present before the physician issuing the prescription, and might not be under the care of a physician at all, or might be the patient of some other physician. The court is also of the view that Section 2 of Chapter 123 has application in cases like the one at bar wherein the purchaser of the prescription is the patient of the physician who issues the prescription, and has sought the professional aid, skill and advice of such physician The court concedes that a physician without any reasonable cause therefor could not arbitrarily say that a person was afflicted with a disease and, in his opinion, needed an alcoholic stimulant, but that was not this case The undisputed evidence in this case showed that the person to whom the prescription was given personally applied to the defendant, in his capacity as a physician, for aid and advice in relation to his physical condition, that such person had failing appetite, general depression and weakness, felt tired from overwork and lack of nourishment, was not in a normal condition of body, was subnormal and was ailing The court is of the view that a person in that physical condition was sick and afflicted with a disease, within the meaning of this statute, and in such a condition as would reasonably warrant a physician in exercising his judgment or opinion as to whether or not such patient needed an alcoholic stimulant When a person in such a physical condition applies to a physician for medical aid and advice, the court is of the view that such a person is a patient within the meaning of the statute How does a physician ordinarily ascertain whether or not a patient is sick and afflicted with some disease and in a condition that would authorize a prescription for alcoholic liquor? By what the patient tells him taken in connection with the physician's personal observation of the physical appearance and examination of the patient The essence of this class of cases is whether or not under all the evidence adduced on the trial the physician acted in good faith in giving the prescription In this case, as in all other criminal actions, the burden of proof was on the state to show by evidence, beyond all reasonable doubt, that the defendant violated the provisions of the statute

Physician Not Guardian for Patient

(Ulbrand vs Bennett et al (Ore), 163 Pac R 445)

The Supreme Court of Oregon, in reversing a judgment rendered against the named defendant and a physician for money belonging to the plaintiff, but in the hands of the defendant, which was used to settle a claim of the physician against the plaintiff for services and to pay a hospital bill, etc, says it is undoubtedly the rule that any transaction between a physician and a patient inuring to the advantage of the former will be carefully scrutinized, and stricter control over it will be exercised than in cases in which no such confidential relation exists between the parties The precept, however, does not go so far as to constitute a medical man a guardian for his patient, and it is not enough to say that he merely had knowledge of the action of a third party against whom the patient seeks relief without showing also that the physician participated in such action

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Society Proceedings

COMING MEETINGS

Amer Acad of Ophthal and Oto Laryng, Pittsburgh, Oct 29 30
Am Assn for Study and Prev of Inf Mort, Richmond, Va, Oct 15 17
American Association of Railway Surgeons Chicago, Oct 17 19
American Roentgen Ray Society, New York Sept. 20 22
Colorado State Medical Society, Colorado Springs, Sept 25 27
Delaware State Medical Society, Middletown, Oct 8 9
Indiana State Medical Association, Evansville, Sept 26-28
Kentucky State Medical Association, Louisville, Oct 16 18
Medical Association of the Southwest, Kansas City Oct 15 17
Minnesota State Medical Association, St Paul, Oct 10 12
Mississippi Valley Medical Association, Toledo, O, Oct 9 11
Nevada State Medical Association, Reno, Oct. 18 19
New Mexico Medical Society, Las Cruces Oct 4 6
Pennsylvania State Medical Society, Pittsburgh, Sept 24 27
Southern Medical Association, Memphis, November 12 15
Vermont State Medical Society, Barre, Oct 11 12
Virginia State Medical Society, Roanoke, Oct 23 26
West Virginia State Medical Association, Fairmont, Oct 2 4
Wisconsin State Medical Society, Milwaukee, Oct. 3 5

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Diseases of Children, Chicago

September, XIV, No 3

1 *Presence of Bacillus Abortus Bovinus in Certified Milk E C Fleischner and K F Meyer, San Francisco —p 157
2 *Phenolsulphonephthalein Elimination in Infants and Young Children J C Gittings and A G Mitchell, Philadelphia —p 174
3 *Use of Pancreatic Vitamin in Cases of Marasmus W H Eddy and J C Roper, New York —p 189
4 *Variations in Infants of Total Blood Solids and Concentration of Sodium Chlorid in Plasma A M Courtney and H L. Fales, New York —p 202
5 *Rumination in First Year of Life C G Grulee, Chicago —p 210
6 Gliosarcoma in Infant of Seven Weeks, Resembling Hydrocephalus. L E Holt, New York —p 219
7 *Effect of Cod Liver Oil on Growth in Case of "Intestinal Infantilism" L E Holt, A M Courtney and H L. Fales, New York —p 222

1 **Bacillus Abortus Bovinus in Certified Milk**—The following question was the basis of the investigation made by Fleischner and Meyer Can one, by semi-annual tuberculin tests, discover reactors so early in the course of their disease as not to throw out tubercle bacilli in the milk and in this way disseminating bovine tuberculosis? To determine this fact, samples of certified milk were injected into guinea-pigs in an effort to produce tuberculous lesions, if tubercle bacilli were present Samples of certified milk were collected over a period of several months from the regular distributors so that the product as it was ordinarily consumed should be investigated The investigation showed that while *B abortus* is, for practical purposes, always present in the certified milk produced in the San Francisco Bay regions, tubercle bacilli are not present in this same milk in sufficient number to give tuberculosis to guinea-pigs Hence there is no necessity for pasteurizing certified milk on account of any danger that it may possess as a disseminator of bovine tuberculosis to infants If the *B abortus* is present in certified milk to the extent evident from these experiments, it is difficult to consider it pathogenic for infants, without, so far as is known ever having produced recognizable lesions on postmortem examination

2 **Phenolsulphonephthalein Elimination in Children**—Phenolsulphonephthalein elimination was studied by Gittings and Mitchell in seventy-five patients with definite renal disease The ages of the patients varied from 3 weeks to 10 years They found no noteworthy difference in the phenolsulphonephthalein elimination of patients with albumin and casts in the urine—apart from the true nephritic groups—and of those whose urinary findings were negative In the groups of acute infections, miscellaneous diseases and pyelitis no marked diminution in the amount of phenolsulphonephthalein elimination was noted, except in two of the three patients suffering from tuberculous meningitis One of these died on the same day that the test was made, and the low phenolsulphonephthalein elimination (15 per cent in two hours) was of no clinical significance The second patient gave less than 5 per cent. of phenolsulphonephthalein in two hours, but lived for seven days The presence of large amounts of albumin and an excessive number of leukocytes in the urine suggests the possibility of tuberculous lesions in the kidneys, which would account for their poor function Neither of these cases is included in any of the summaries The cases of nephritis showed a distinct diminution in phenolsulphonephthalein percentages Presumably all of them belonged to the type of parenchymatous nephritis None died under observation except a patient with cardiorenal disease, whose death was cardiac and not uremic

3 **Use of Pancreatic Vitamin in Cases of Marasmus**—From the combined results of clinical and experimental observation, the authors conclude that a diet of condensed milk and cereal is markedly deficient in natural vitamins The addition of pancreatic vitamins to such a diet influences growth The use of pancreatic vitamin seems to promise definite hope of

success as an agent for stimulating the growth of marasmic children The dosage and the conditions under which the effect is produced are under investigation

4 **Blood Solids and Concentration of Sodium Chlorid in Plasma of Infants**—Courtney and Fales found that, in general all infants not in normal condition had low blood chlorid frequently very much lower than normal, but except in edema or under some unusual condition of blood concentration the percentage of the total solids in the blood of infants tended to remain constant

5 **Rumination in Infants**—In the six cases reported by Grulee, certain phenomena have seemed to be suspiciously common first ulcer of the duodenum, second pylorospasm Grulee is of the opinion that the condition can be explained on the basis of a hyperexcitability of the involuntary muscles as suggested by Hess Treatment to be successful should probably be based on attention to the psychic condition of the child

7 **Effect of Cod Liver Oil on Growth in Case of Intestinal Infantilism.**—In the case cited by Holt and his associates there were but slight evidences of old rickets and none whatever of any active rickets The cod liver oil was administered with the hope that it might influence salt retention At the same time by increasing the diet, especially the amount of milk an attempt was made to increase the salt intake The results in this case showed conclusively how essential to proper growth is the assimilation of the salts ingested The authors believe that the cod liver oil was by far the most important factor in the result, the next being the milk.

American Journal of Medical Sciences, Philadelphia

September CLII No 3

8 *Case of Adamantinoma Showing Epithelial Pearls S Graves, Louisville Ky—p 313
9 *Pathologic and Clinical Aspects of Thrombo-Angeitis Obliterans L. Buerger New York.—p 319
10 *Treatment of Peripheral Gangrene Due to Thrombo Angeitis Obliterans with Reference to Femoral Vein Ligation and Sodium Citrate Injections. N Ginsburg Philadelphia—p 328
11 Newer Concepts of Neuroses Estimate of Their Clinical Value S I Schwab St. Louis.—p 338
12 *Primary Malignant Neoplasm of Lung M Packard New York—p 351
13 *Individual Quantitative Dosage of Tuberculin Determined by Cutaneous Reaction Its Employment in Treatment of Surgical Tuberculosis P R. Sieber Pittsburgh—p 365
14 Relation of Recent Epidemic of Respiratory Diseases in Denver to Pulmonary Tuberculosis. J J Waring Denver—p 371
15 Analysis of Thirty Cases of Pulmonary Tuberculosis Treated by Induction of Artificial Pneumothorax. P H Ringer Asheville N C—p 380
16 Causes of Recurrent Symptoms After Operation for Gastric and Duodenal Ulcer A O Wilensky New York—p 387
17 *Study of Significance of Heredity and Infection in Diabetes Mellitus J R. Williams Rochester N Y—p 396
18 Study of Thermic Fever with Special Reference to Blood and Urine Chemical Findings. R B H Gradwohl and E. Schisler St. Louis—p 407
19 *Classification of Chronic High Blood Pressure Cases L. M Warfield Milwaukee, Wis—p 414
20 Study of Cases of Ascites in Wards of Canton Hospital, China W W Cadbury Canton, China—p 425

8 **Adamantinoma Showing Epithelial Pearls**—This report is submitted by Graves because it is that of an adamantinoma developing purely from adamantoblasts, shows epithelial pearls and occurred in a 16-year-old negro boy The specimen was removed from the superior maxilla. The tumor had been first noticed about one year before as a swelling of the gum had grown gradually and been painless

9 **Thrombo-Angeitis Obliterans**—The lesions in thromboangeitis obliterans in chronologic order are summarized by Buerger (1) an acute inflammatory lesion with occlusive thrombosis, the formation of miliary giant cell foci, (2) the stage of organization or healing, with the disappearance of the miliary giant cell foci the organization and canalization of the clot, the disappearance of the inflammatory products, (3) the development of fibrotic tissue in the adventitia that binds together the artery vein and nerves

10 **Treatment of Gangrene in Thrombo-Angeitis Obliterans**—Femoral vein ligation has been performed by Ginsburg in four cases of gangrene in thrombo-angeitis obliterans Independently, or in conjunction with this operation, the employment of intravenous injections of a saline solution, either 2 per cent sodium citrate or Ringer's solution, has been carried out Ginsburg found the operation to be of doubtful value since only one of the four patients showed any improvement following its performance This patient has unquestionably improved to the point of security of the limb in which the venous current was obstructed Involvement of the other leg is now taking place and the value attaching to the procedure may be still greater in the future, since it may preserve one of his extremities The operation is a hazardous one and may cost the life of the patient, as occurred in one of the author's cases If ligation is done the ligation should always be placed below the entrance of the long saphenous vein into the femoral vein, thereby preserving some collateral venous circulation in the affected limb Following this operation there is developed a large posterior femoral vein passing from the popliteal space as a tributary to the sciatic or inferior gluteal vein In one of Ginsburg's cases ligation had no effect whatever in retarding the progress of the disease, and even failed to produce venous stasis in the affected extremity It was a convincing example of how greatly impaired was the arterial distribution to the peripheral parts in the affected limb and proved that the problem cannot be attacked except by dealing with the arterial element in this disturbed circulation Ginsburg believes that the poor arterial circulation present is much better than the results attained by any of the proposed surgical measures to increase the circulation in the involved extremity

12 **Primary Malignant Neoplasm of Lung**—Packard's series of primary cancer consists of seven cases Four of these have been verified by necropsy Another was confirmed by operation Five of them occurred in the male sex, and in six the initial lesion was on the right side. The ages varied from 38 to 65 years Pain and cough were the first symptoms in six while weakness and exhaustion constituted the prime reason that caused the other patient to seek medical advice. Dyspnea was a very early symptom in all, and although at first it was only marked in some, after physical exertion it invariably became worse so that later in the disease it actually amounted to orthopnea Expectoration was variable Hemorrhage was very common, and occurred in more or less quantities in five of the cases Tumor cells were never found, although a careful and systematic search was instituted in all instances Cachexia was a late symptom in all but one case Fever was present in three cases, reaching as high as 105 in one person. This was accompanied by night sweats and chills so that tuberculosis and abscess of the lung were very seriously considered Leukocytosis was present in every instance, varying from 10,000 to 20 000 per cubic millimeter There was nothing to be noted about the differential blood count, with the exception of eosinophilia in one of the cases in which the diagnosis of sarcoma was sustained

13 **Dosage of Tuberculin in Surgical Tuberculosis**—Of the forty cases reported by Sieber nineteen had glandular disease all with the cervical group affected one case showing evidence of involvement of the axillary group as well Of the joints, in six cases the hip was involved, in three the knee in one the ankle and in two the wrist In four cases the vertebrae were affected The metatarsal bones and the phalanges of the hand were each diseased in two cases The lesion was located once in the greater tuberosity of the humerus, sixteen cases were open and twenty-four were closed Nineteen patients sought treatment because of cervical adenitis, seven of them having sinuses Of the nineteen cases, twelve were discharged as well, six were improved, and one unimproved when last seen Of the six improved cases, two failed to return after receiving six injections, one left the city after receiving two injections, and the remaining three are still under treatment There were six cases of tuberculous arthritis of the hip, one patient has been discharged as well and is now at work, three were improved and two unimproved In three cases the lesions were situated in the knee One was discharged with moderate limitation

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98 *Treatment of Bichlorid of Mercury Poisoning H B Weiss, Cincinnati —p 595
99 Modern Treatment of Syphilis J L Murray, Toledo —p 598

98 **Treatment of Bichlorid of Mercury Poisoning** —Weiss has used the principle of colloidal swelling described by Fischer, as the basis for his treatment He gives alkali, hypertonic salts by mouth, by rectum and intravenously, and he has used a pleasant alkaline drink modified from the old English potus imperialis which consists of cream of tartar, 4 gm , sodium citrate, 2 gm , and sugar, 2 gm , with lemon or orange juice to taste, to 8 ounces of water This drink is best made by placing the cream of tartar and sodium citrate into the lemonade just before using In conjunction with this Weiss uses the intravenous injection of Fischer's solution. The treatment commences by washing the stomach with the whites of three eggs and one quart of milk, followed by water until the stomach is emptied Before the stomach tube is removed 3 ounces of magnesium sulphate with 6 ounces of water is introduced and allowed to remain in the stomach The patient is then given a soap-suds enema If the patient did not vomit shortly after taking the poison and did not reach medical aid for at least three hours later, an intravenous injection of Fischer's solution is given at once Usually over 1,000 c c are introduced into the system Weiss has given as high as 2,000 c c of the solution without any disturbance to the patient. Then the patient is given eight glasses of "imperial drink" a day and large quantities of water by mouth He is allowed a liberal diet, almost anything except an excess of protein foods The analysis of the urine is used as a control of the treatment The patient should void large quantities of urine as he is taking large amounts of fluid Endeavor to keep the urine alkaline Weiss has had complications only in one patient, he developed a severe necrosis of the mucous membrane of both sides of the cheek, and later in the course of the disease he had severe intestinal hemorrhages, in all probability from the colitis produced by the mercury excreted through the bowel

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103 Steel in Eye without Symptoms F Allport, Chicago —p 458

104 Case of Recurrent Paralysis of Right Abducens Lasting Twenty One Years M I Leavitt Brooklyn —p 460
105 Frequency of Occlusion of Inner End of Canaliculus in Old Trachoma H Gifford Omaha —p 462

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111 State Legislation Concerning Blind F Allport Chicago —p 597

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113 Adult Rectal Prolapse Two Cases and Contrast R W Jackson Fall River Mass —p 191
114 Diastolic Blood Pressure O A Faust Providence —p 195

South Carolina Medical Association Journal, Greenville

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115 Hospital Standardization F C Bowman Chicago —p 631
116 Medical Aspects of Social Hygiene Movement R S Yarros Chicago —p 637

Wisconsin Medical Journal, Milwaukee

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118 Relation of Acidosis to Edema in Pneumonia A B Schwartz Milwaukee —p 83
119 Duodenal Ulcer in Infants Report of Four Cases W H Bartran Green Bay —p 85
120 Clinical Examination in Cases of Local Infection F C Nadeau Green Bay —p 89

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2 Alleged Perils of Uric Acid J B Berkart —p 208
3 Acetozone as General Surgical Antiseptic G Gore Gillon and R T Hewlett —p 209
4 *Bacteriologic Examination of Blood in Cases of Irritable Heart G Briscoe and L Dimond —p 210
5 Two Cases of Traumatic Rupture of Spleen J L Stretton —p 211
6 Case of Spontaneous Rupture of Spleen Splenectomy Recovery W Rankin —p 211
7 Early Treatment of Compound Fracture of Femur Caused by Gunshot Wound R C Dun —p 212

2 **Alleged Perils of Uric Acid** —Berkart claims that the clinical data affords no proof whatever of any pathogenic property of uric acid, nor do the results of experimental inquiries There is consequently no indication for an exhibition of a uric acid solvent, because that substance is readily soluble in the tissue juices and is not the cause of the symptoms observed Not only is the use of the pretended remedies to cure the various functional derangements and organic lesions which are wrongly attributed to uric acid recommended on a baseless hypothesis but it is mischievous also because it allures the unwary sufferer by specious advertisements of its effectiveness to have recourse to it and continue with it until its failure is evident Thus valuable time is lost before he submits himself to rational treatment while there is still a reasonable prospect of satisfactorily coping with his disease.

4 **Examination of Blood in Cases of Irritable Heart.**—In order to prove or disprove the correctness of the statement that organisms had been found in the blood of patients complaining of the symptoms associated with the condition known as "irritable heart" Briscoe and Dimond made ninety-six observations on forty-three cases In no instance was any organism grown, except in the few cases which became contaminated by organisms from the air when the flask method was used Using the methods of cultivation in general vogue the authors failed to demonstrate the presence of bacteremia in cases of "irritable heart" and conclude therefore that bacteremia does not play a demonstrable part in the pathology of this disease

Glasgow Medical Journal

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8 Value of Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis J Crocket —p 65
9 British Hospital Work in Serbia —p 77

Indian Medical Gazette, Calcutta

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11 King Edward VII Memorial Pasteur Institute Shillong R Knowles —p 226
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Journal of Laryngology, Rhinology and Otology, London

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16 Bony Tumor of Nasopharynx Simulated by Malposition of Cervical Vertebrae Reposition Great Amelioration E F Cyriax —p 241

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17 Gunshot Wounds of Knee Joint J Campbell and H F Woolfenden —p 185
18 Irrigation and Suction Drainage for Treatment of Certain War Wounds C C Sneyd —p 194
19 Thermalgia (Causalgia) J S B Stopford —p 195
20 Bayonet Wound of Buttock Lung Punctured Surgical Emphysema J D Hayward —p 199
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23 Ropy Bread J M Beattie and F C Lewis —p 211

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24 Meat Inspection W J Howarth —p 225
25 Immediate Effect of Cigaret Smoking on Healthy Men and on Cases of Soldier's Heart J Parkinson and H Koefod —p 232
26 Horseshoe Kidney by Union of Upper Poles Diagnosed Prior to Operation D Newman —p 236
27 Case of Claustrophobia W H R Rivers —p 237
28 Perforations of Stomach and Duodenum J Taylor —p 241
29 Problem of Tuberculosis H H Thomson —p 251

17 **Gunshot Wounds of Knee Joint** —The lines along which all treatment of gunshot wounds of the knee joint is directed by Campbell and Woolfenden in septic cases are 1 The lowering of intra-articular tension by evacuation of the exudate, thereby preventing the tracking of infection along the fascial planes 2 The rapid overcoming of infection and the removal of infective material as soon as it is formed thereby diminishing suppuration 3 The promotion of the formation of adhesions, thereby limiting the area of infection and diminishing the area of the surface for toxic absorption 4 The removal of pressure from the articular cartilage thereby diminishing the chances of its becoming eroded Excluding one patient whose leg was amputated for gangrene due to concomitant laceration of the popliteal vessels, and two that died, the one suffering on admission from septicemia and the other from intense and fatal anemia as the result of blood lost at the time of injury, the authors have had fifty-nine recoveries out of sixty cases, and only one amputation The treatment in severe cases is based on three fundamentals 1 Absolute rest and fixation 2 The strictest asepsis 3 The use of Carrel's method of wound treatment With this method of treatment efficiently carried out infection is most effectually counteracted, organisms and the pabulum suitable for their growth are washed outward even from the deepest parts of the wound, ingress of sepsis from without is prevented—to the authors' minds a most important consideration in the treatment of knee joint cases, pus only forms in small quantity, adhesions of the synovial membranes form with great readiness, the patient need only be dressed once in twenty-four or forty-eight hours

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was often no mucous lining but only a smooth, fibrous surface from which it was impossible to get a smear Most of the children s appendixes show a delta-shaped entrance to the cecum which is closed by a valve of mucous membrane

Archives des Maladies du Cœur, etc, Paris

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35 *Retrograde Ventricular Extrasystoles and Postextrasystolic Ventricular Automatism (De la conductibilite cardiaque inverse) M Petzetakis—p 30
36 The Anatomic Studies of Leonardo da Vinci Chauvet—p [illegible]

35 **Retrograde Conductibility of the Heart**—Petzetakis discusses whether an impulse may not be carried from the ventricle back to the auricle Some deny the possibility of this but he reports the details of two cases in which with total bradycardia there were unmistakable retrograde ventricular extrasystoles One patient was a farmer-soldier of 23 with trigeminal rhythm The tracings show how compression of the eyeball abolished the extrasystoles and slowed the rhythm while amyl nitrite accelerated it The other patient was a barber and the tracings show the constancy of the auricular flutter following each extrasystole from the ventricular automatism In the first case the extrasystoles appeared only when the man was much fatigued In the other the bradycardia followed an attack of dysentery and the extrasystoles cut into the bradycardia Neither of the men had any organic disease of the heart and these extrasystoles were evidently of toxic or reflex origin It is sometimes possible to arrest extrasystoles by deep breathing confirming their nervous nature They have also been brought on experimentally by stimulation of the cardiac nerves Petzetakis has even induced extrasystoles by stimulation of the sciatic nerve and has witnessed them develop from the influence of the uterus Last December he reported that he had succeeded in inducing retrograde ventricular extrasystoles in dogs with bradycardia The data presented thus demonstrate that cardial conductibility is reversible but he adds it is nothing new that an irreversible phenomenon may be composed of elements individually reversible

Bulletin de l'Académie de Médecine, Paris

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37 Cereals to Take the Place of Wheat E. Maurel—p 89
38 Pyopneumothorax as Consequence of Poisoning from Asphyxiating Gases L. Lyon Caen and Kus —p 96
39 Graduated Farm Labor in Systematic Treatment of Stiff Joints and Muscular Contracture after War Wounds. H Guilleminot —p 97
40 Receiving Cap for Telephone and Wireless Telegraph Operators H Bauvallet.—p 101
41 Tests for Apparent Death A Terson —p 103

40 **Receiving Cap for Telephone and Wireless Telegraph Operators**—Bauvallet s model cap is held in place by pressure from front to rear like the head mirror of the nose and throat men and there is no strong pressure from side to side Each receiver has a soft circular pad which fits gently over the ear but closes it hermetically There is also a soft pad to protect the brow The wires can be arranged below the chin to form a band which aids in holding the cap in place The ear pads are removable to permit sterilization and individual use. A number of other innovations are described Bauvallet having tested on himself the caps at present in use and having become convinced that from the medical standpoint there was great room for improvement.

41 **Signs of Apparent Death.**—Terson expatiates on the important information to be derived from the eye in regard to the manner of death and whether there is still a spark of life in the body He says that the assumption that the pupils do not show any reaction after death is a mistake There is no or very slight reaction to light, but the action of mydriatics and miotics and the action of electricity is almost always still pronounced although variable as to intensity and duration In some cadavers these reactions can be elicited up to five or six hours after death, in others they are scarcely perceptible With eserin he was able to induce violent contraction of the pupil, lasting for twenty minutes, in the cadaver of an elderly man who had been dead for four hours while similar tests the same day in a young man who had been dead for only two hours elicited a scarcely perceptible response The pupil is the last of all to die, and while it may be immovable in certain living persons it may persist movable for some time under different reagents in certain cadavers Hence examination of the pupil is not decisive On the other hand the circulation reactions are absolutely dependable Injection of fluorescein does not always induce in the human eye as lively a change of tint as in animals Its effect should be studied elsewhere as well as in the eye Application of the actual cautery or of copper sulphate and instillation or injection of salt solution under the conjunctiva do not induce any irritation on the warm cadaver two hours after death More instructive still is a test with pulverized dionin This, he recalls is the proprietary name given by the Germans to the codethylin or ethyl morphin discovered by Grimaux in 1882 It dissolves rapidly in glycerin, and when applied to the eye in a 33 per cent solution in glycerin it induces smarting a purplish red congestion and chemotic swelling of the conjunctiva of the eyeball, and all this without any actual injury or accident at the time or later Terson urges that this simple reaction should be applied at the slightest doubt whether the death is real or only apparent In the numerous conditions which so deceptively simulate death the ocular criteria should never be neglected Their confirming evidence dissipates the last doubt and even applied alone their testimony may prove convincing

Journal de Radiologie et d'Electrologie, Paris

May June II No 9 pp 545 592

42 Radiographic Aspect of Gangrenous Lesions Especially Gas Gangrene C Lardennois and Pech—p 545
43 Radiologic Equipment for the Army Aubourg and Barret—p 548
44 Operating under Screen Control (Les methodes radio chirurgicales) R Ledoux Lebard—p 552
45 *Radiotherapy for War Wounds Rechou—p 557
46 Necessity for Having Only Physicians as Chiefs of Radiologic Services. M Beclere—p 564
47 *Let the Radiologist Select his Methods for his Diagnosis Barret and Aubourg—p 567
48 The Role and the Results of Roentgenology in the Diagnosis of Pulmonary Tuberculosis in Soldiers. Delherm and L. Kindberg —p 572

45 **Radiotherapy of War Wounds**—Rechou expatiates on the efficacy of the Roentgen rays in modifying the fibrous connective tissue which forms around nerves after a war wound facilitating the absorption of the newly formed exogenous sclerosis as Hesnard calls it This connective tissue proliferating around the nerve binds it to adjacent organs and mischief follows The rays seem to disintegrate this newly formed tissue while the nerve tissue does not seem to be influenced by the rays in doses just sufficient to accomplish this He has found most effectual a monthly large dose, 10 or 12 H units, under an aluminum filter, with cross fire application when possible He reports the details of seven cases in which the neuroma, contracture of the biceps and of the fingers and the reaction of degeneration and atrophy of the muscles all subsided in two or three months or were materially improved In a group of five other cases the cicatrix after a war wound was adherent and interfered with functioning The use of the limb was regained more or less completely after a few exposures Cheloid and painful cicatrix were also favorably modified Neuritis and even ankylosis may show marked improvement In the discussion that followed, Beaujard reported over 66 per cent. cured and over 23 improved in ninety-three cases of crippling or painful wounds and all but 20 per cent cured or improved in fifteen cases of troublesome neuromas, while all were cured of the ten patients with typical causalgia All but 21 5 per cent were cured or improved in fourteen cases o[illegible] cases [illegible]tricial compression of a nerve and in both of the [illegible] the spinal cord was thus compressed [illegible] the fine results obtained in a nu[illegible] and inflammation of tendon [illegible] old hydrarthrosis The [illegible] remarks applied exclu[illegible] rays were most effectual

47 **Radioscopy and Radiology**—Barret and Aubourg comment on the advisability of leaving to the radiologist the choice of the method of examination His task is the radiodiagnosis, and how best to obtain this should be left to him Radioscopy is the preferable technic for it in most cases and the prevailing abuse of radiography is extravagant Among the cases cited to demonstrate the correctness of these statements is one of a scrap of shell in the forearm A radiogram had been taken from the front and side, the fingers extended, but the surgeon at four separate operations was unable to find the scrap Examination with the screen showed that when the fingers were flexed the scrap moved up 34 mm Under the influence of the anesthetic the fingers became flexed

Paris Médical

August 4, VII, No 31 pp 93 128

49 *Atropin and Amyl Nitrite Test in Bradycardia O Josue and F Belloir—p 93
50 *Heart Murmurs C Laubry—p 99
51 Anemia in Primary Malaria G Paisseau and H Lemaire—p 103
52 *The Systolic Blood Pressure in Arm and Leg with Aortic Insufficiency J Heitz—p 112
53 *The Abdominocardiac and Oculocardiac Reflexes L Pron—p 122
54 Rapid, Extemporaneous Technic for Transfusion of Blood G Rosenthal—p 125

49 **Atropin and Amyl Nitrite Tests with Bradycardia**—Josue and Belloir state that as these drugs temporarily arrest the cardio-inhibiting action of the pneumogastric, they throw light on the clinical physiology of the heart action in case of abnormally slow functioning The action of amyl nitrite is quicker, more constant and stronger than that of atropin A positive response, namely, acceleration of the pulse, does not imply that the bradycardia is the result of excitation of the pneumogastric but only that the vagus still retains its normal tonic action on the myocardium In fact, both atropin and amyl nitrite act on the normal heart This point is very important However, the cases of bradycardia giving a clearly positive reaction are as a rule total bradycardias determined by the excitation of the vagus, only exceptionally are they the result of dissociation between the auricles and ventricle from the same cause The tonic action of the vagus may be still retained even when the bradycardia is the result of toxic myocardiac trouble In this case the test may prove positive even although the myocardium is responsible for the bradycardia The cases of bradycardia in which the tests are negative are those for which the myocardium is responsible As a rule the bradycardia in such cases is from heart block Negative responses occur likewise in bradycardia from toxic influences acting on the myocardium, as for example under digitalis In the cases of bradycardia with complete dissociation between the auricle and ventricle, these drug tests sometimes determine a slightly faster action of the ventricles, indicating the persistence of the connection of the pneumogastric with the ventricles When there is no nervous or muscular connection and the ventricles contract with an invariable idioventricular rhythm, there is absolutely no response to these drug tests In conclusion they warn that the information supplied by atropin and amyl nitrite with bradycardia is interesting but not absolutely conclusive, certain points being still open to discussion

50 **Heart Murmurs**—Laubry's remarks are addressed to the practitioner, not the specialist He reiterates that the special moment during the heart cycle at which the murmur appears, and its duration, are the main points for estimation of its clinical significance The important thing is to locate the murmur in time rather than in space, its seat is of less moment Vaquez declares that the heart should never be examined first with the stethoscope, this should be reserved till later to determine the exact point where the murmur sounds loudest The first phase should be determined not by the pulse but by the tactile sensation of the apex beat which accompanies the sound When a diastolic murmur commences with the second phase or immediately afterward, finishes immediately before the first phase, and fills the whole of the long pause, it is always organic, it occurs only with aortic insufficiency With mitral insufficiency, the sound is a rumbling, not a murmur When the murmur occupies the entire systole, commencing with the first phase and stopping with the second, it is always a sign of valvular disease, but if there is even a brief space free from it at the middle or end of the short pause, then the murmur can be recognized as not only inorganic but it can be located outside of the heart, in the precardiac sheet of the lung If the free interval is at the beginning of the short pause, then it may be organic, notwithstanding the integrity of the first sound A murmur of inorganic origin may be encountered with tachycardia, in which case exact localization in time is out of the question The site of the murmur is of little importance with a diastolic murmur but is important with the systolic In the region of the base and of the middle of the heart, at about the third interspace and the fourth rib, every dubious murmur not decidedly filling the entire pause may be regarded as inorganic, as also every murmur at the base not followed by a diastolic murmur In the apex region, if there is any doubt, prolonged repose, influence of change of position or of pressure on the eyeball may modify conditions so that the murmur may be better understood Of course the above applies only to dubious murmurs With actual organic disease there is no chance for doubt The practitioner should practice to locate the murmur at its special point in the time cycle When certain of this, he can fit the knowledge thus gained into the whole train of symptoms and the history of the case, and all may become clear The murmur symptom should be analyzed first of all

52 **The Systolic Blood Pressure in Arm and Leg with Aortic Incompetency**—Heitz reviews the literature and his findings in fifty-one subjects, the tabulated data filling six pages The systolic pressure seems to be higher in the tibial arteries as a rule with aortic incompetency or aortic lesion of any kind, but the diastolic is not modified The patients were reclining at the time

53 **The Abdominocardiac Reflex**—Pron tabulates the details of fifty cases in which he recorded the difference between the pulse rate as the subject stood erect or reclined The sliding down of the viscera, the intestines and the stomach in particular, as the subject stands, drags on the gastric ramifications of the pneumogastric, and by reflex action accelerates the pulse This abdominocardiac reflex thus signifies abdominal ptosis, complete or partial, but its effect is magnified by any existing nervous irritability The practical conclusion of his research is that the pulse should be counted always with the subject reclining, if he is standing the pulse may be pathologic even when the cardiovascular system is intact Another practical point is that persons inclined to ptosis should wear a supporting band to ward off such traction on the gastric nerve ramifications The supporting band must always be below the stomach, to push it up Sometimes a little pad of flannel or cotton, fastened to the belt or worn just above the belt may answer the purpose Study of the abdominocardiac reflex also emphasizes the importance for dyspeptics of reclining after meals to relieve them of the dragging down from the weight of the food Also that persons inclined to defective digestion should avoid the erect position as much as possible at all times

Presse Médicale, Paris

July 5 XXV, No 37, pp 377 384

55 *Spirochete and Mycosis Bronchitis Sometimes Simulating Pulmonary Tuberculosis A Castellani—p 377
56 Case of Chronic Congenital Edema of Right Arm L Rimbaud and H Roger—p 380
57 Extraction of Projectiles under Screen Control A Lapointe—p 381

55 **Bronchial Spirochetosis**—Castellani is professor of tropical diseases at the University of Rome He here states that in a soldiers' sanatorium in northern Italy he noticed that over 3 per cent of those sent there with the diagnosis of pulmonary tuberculosis in reality had merely a mycosis or spirochetosis affecting the bronchi He called attention to this bronchospirochetosis in 1905, and his statements have been confirmed since by others in the Philippines, Soudan, Switzerland and elsewhere, Chalmers and O'Ferral reproducing it in monkeys by intratracheal injection of a patient's

sputum The chronic form can usually be differentiated from pulmonary tuberculosis only by the microscope The prognosis is generally favorable in the acute forms but when it runs into a chronic course it may last indefinitely although with occasional remissions Arsenic is the main reliance in treatment and lately he has been combining tartar emetic with it He prescribes the latter as 0 10 or 0 20 gm tartar emetic with 50 gm syrup of tolu and 100 gm chloroform water to counteract the emetic action of the tartrate The patient takes a tablespoonful in water four or six times a day Castellani describes further the various forms of mycosis affecting the bronchi tabulating twenty different hyphomycetes he has isolated all belonging to the monilia type and others of the oidium and hemispora types In all these forms of mycosis there may be symptoms merely of a mild bronchitis or they may suggest pulmonary tuberculosis Iodids are useful in treatment but they do not ward off the fatal termination in the malignant cases It has seemed sometimes that the iodids (2 or 4 gm a day of potassium or sodium iodid) were more effectual if salt was restricted in the diet Pinoy called attention to this with dermatomycoses The microscope is the only means of differentiation

Revue de Chirurgie, Paris

January-February XXXVI No 1-2 pp 1-240

58 Is the Carrel Technic Applicable in the Base Hospitals? M Guillot and H Woimant —p 1
59 *Amebic Liver Abscess Treated with Emetin Alone P Brocq and A Auge —p 21
60 Inability to Rotate the Forearm after Fracture. J Masmonteil —p 38
61 *War Wounds of Foot and Ankle F Quenu —p 89 Continuation
62 Aneurysm Involving Internal Carotid Artery and Internal Jugular Sinus at the Base of the Skull M Patel and M Lannois —p 217
63 Oblique Anastomosis of Ureter Stumps A L. Soresi (New York) —p 226
64 Dry Wounds of Large Vessels. F Perrenot —p 232

58 **The Carrel Method as Applied in Base Hospitals**—Guillot and Woimant report from the Rockefeller Institute at Compiegne that their experience with thirty-four wounded men confirms that old wounds respond on the whole like recent wounds to the Carrel method of sterilization and early suture. The only problem is to ensure that the antiseptic laves all the parts of the wound It is necessary for this to clear out all infected tissues and these complete operations on infected wounds, especially where there is fracture, are dangerous The bacteriologic control shows that in an infected fracture case the microbes proliferate enormously after any operation on the focus running up in a few hours from ten to uncountable numbers Hence ample disinfection must be applied as a preliminary to the completing operation By this means conditions are improved so that the focus can be thoroughly cleared out with comparatively little danger, and the wound then be treated as if it were a fresh wound Each of these four phases, disinfection, operation sterilization and suture, is done strictly under the guidance of bacteriologic control The criterion for safety in the final suturing of the wound is one bacterium per three microscopic fields They close with a recapitulation of the exact details of Carrel's technic and for the preparation of Dakin s fluid

59 **Amebic Suppuration in the Liver Cured with Emetin Alone**—Brocq and Auge report three new cases which emphasize anew the remarkable results that can be anticipated from subcutaneous injection of emetin alone, rendering surgical measures unnecessary One of the men had acute hepatitis, the general condition so grave that no operation could be attempted and the benefit under the emetin amounted to an actual resurrection The improvement became evident the third day Two doses of 0 02 gm were injected daily for three days, then 0 04 gm the fourth and fifth days, then 0 02 gm gradually reducing the dose The total given was 0 44 gm in twelve days The amebic infection was of eight years standing In the second case the diagnosis wavered between abscess of the liver and suppurating gallbladder disease, but an exploratory laparotomy revealed the large abscess in the liver They did not attempt to evacuate it but gave 0 32 gm emetin in the first twelve days and the same amount in a second series of injections after a week's suspension The third case shows that unless the course of emetin is prolonged long enough or repeated often enough the suppuration in the liver is liable to return It is not enough to cure the liver lesion, the patient must be radically freed from the ameba

60 **Inability to Rotate the Forearm after Fracture**—Masmonteil discusses the mechanical principles involved in the limitation or complete suppression of rotation of the forearm after fracture, and how to prevent and cure it

61 **Wounds of Foot and Ankle**—In this instalment of Quenu's monograph he discusses treatment of recent and old wounds of foot and ankle the cases cited in illustration bearing the numbers 173 to 243 By analysis of the mechanism of the unphysiologic functioning after healing he seeks guidance for treatment of such injuries

63 **Anastomosis of Ureter Stumps**—Soresi is serving with the Italian army at present and he here gives an illustrated description of a simple method of suturing the ureter stumps which leaves no possibility for narrowing the lumen The primary transverse section is transformed into an ellipsoidal anastomosis placed slanting This shortens the ureter by 1 cm He slits each stump for about 1 mm longer than the diameter of the stump and sutures the rear straight edge of each stump together Then the circular edge of the right stump is sutured to the straight edge of the left stump and the suture is continued right along, joining the front straight edge of the right stump to the circular edge of the left. By this means is obtained a long slanting suture with the ureter bulging roundly at each side The diameter of the ureter is thus materially enlarged at this point. A roentgenogram of a dog eleven months after an operation of this kind shows the ureter considerably enlarged at the anastomosis with no dilatation above.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 28 XLVII No 30 pp 961-992

65 Operation versus Radiotherapy for Uterine Cancer A. Labhardt —p 961
66 *The Alleged Titration of Digitalis on Frogs T A. Redonnet (Madrid) —p 974

August 11 No 32 pp 1025-1056

67 *Dosage of Bromids in Epilepsy and Melancholia E Bernoulli —p 1025
68 Importance for Man of Bovine Tubercle Bacilli S F von Wolff ring —p 1036

66 **The Alleged Titration of Digitalis**—Redonnet writes from the Pharmacologic Institute at Zurich to comment on the difference frequently observed between the action of digitalis preparations in the clinic and that which should be anticipated from the titrated values Tests on the frog heart gave varying results with preparations of digitalis of different origins and dissolved in different mediums Different results were obtained at will by varying the vehicle the concentration and the other ingredients of the preparation Clinical experience further shows that titration values obtained with the frog heart do not have identical values in man In short he declares, frog heart titration is useless and misleading Quantitative dosage should alone prevail, and the physician should master the dosage for some one preparation and not change about His own experience is the best teacher, and he will thus overcome the confusion with which the frog method has shrouded the use of digitalis He reiterates that digitalis is the opium or the quinin of the heart just according to the dosage.

67 **Dosage of the Bromids**—Bernoulli refers to the increasing use of the bromids in treatment of melancholia and similar conditions, saying that this enlarging of the indications renders careful dosage imperative This treatment has proved particularly useful in the hands of Ulrich (as mentioned in these columns July 1, 1916 p 81) He aims to get the patient under the influence of the bromids to an extent equivalent to the first phase of a bromid narcosis, but emphasizes the necessity for exact estimation of the degree of brominization When there is large intake of salt, the bromid has comparatively little action By giving the two in certain relative

proportions, a balance is obtained in the body in time, corresponding to the balance between them in the dosage The promptness with which this balance is attained depends on the five factors, the intake of bromids, of salt, the elimination of each and the salt content of the body Bernoulli compares it to a tub of cold water into which hot and cold water are running The heat of the water is determined by the amount of hot water that displaces the cold in the tub, and the degree of brominization by the fraction of the body chlorin which has been molecularly substituted by bromin This is the relative bromin content of the body and it can be determined by a single analysis of the blood Individuals differ widely, he found 1 2 gm chlorin per kilogram body weight in two thin persons and from 1 13 to 1 57 gm in fourteen rabbits When this is once established, then further control can be kept up by determining the chlorin content of the urine, the variations in this seem to give dependable information as to variations in the chlorin-bromin balance, although there may be a wide difference between the content in blood and urine In severe cases of epilepsy, enough bromids must be given to bring the relative bromin content of the blood up to 20 or 25 per cent or even 30 per cent In the urine the corresponding relative content would be from 15 to 25 per cent The diet must be salt-poor, reduced to from 5 to 15 gm salt per day It is not necessary to drop salt altogether The chlorin content of the urine also permits control of the intake Only when we know the exact amount of chlorid being ingested can we estimate the proper dose of the bromid He gives a table showing the exact amounts of sodium bromid that should be given with given amounts of salt to realize a 15, 20, 25 or 30 per cent relative bromin content of the urine When the patient is getting 5 gm of sodium chlorid per day, the sodium bromid dose should be respectively, 1 6, 2 2, 3 and 3 8 gm With 10 gm sodium chlorid, the figures are 3 1, 4 4, 5 9 and 7 5 gm With 15 gm sodium chlorid, 4 7, 6 6, 8 8 and 11 3 gm If potassium bromid is used instead of sodium bromid, the dose should be increased by 15 per cent above these figures A chart marked off in fifteen vertical and twenty horizontal squares shows the dosage with precision, the vertical squares representing the sodium bromid and the horizontal the sodium chlorid Starting at the left, lower zero corner, straight lines are drawn slanting up to the right. One drawn from zero to the upper right corner represents a 30 per cent relative bromin content of the urine A second line from zero to the twelfth vertical square, at the right, represents 25 per cent , to the ninth right vertical square, 20 per cent, and to a point just above the sixth right vertical square, 15 per cent Seven case reports are given in detail, with the chart of one He reiterates that it is the combination of sodium chlorid and sodium bromid that is effectual, neither alone, and only their proper combination

Gazzetta degli Ospedali e delle Cliniche, Milan

July 1, XXXVIII, No 52, pp 737 752

69 Fatal Tetragenus Sepsis C Rubino —p 739

July 5, No 53 pp 753 760

70 Surgical Complications of Scarlet Fever F Bindi —p 755
71 Reform of Midwife System E Villa —p 759

July 12, No 55, pp 777 784

72 Epidemic of Neuritis with Scurvy in Troops on Active Service M E Ferrari —p 778

July 15, No 56, pp 785 800

73 *Pain and Other Disturbances from War Wounds of the Arm (Sinestesalgia) L Corridi —p 786

July 19, No 57, pp 801 808

74 *Eye Complications of Scarlet Fever Tito di Giuseppe —p 803

73 **Nervous Disturbances after War Wounds of the Arm** —In the three cases described there were two sets of symptoms, one evidently due to neuritis from compression and the other to injury of the sympathetic innervation The median nerve was the main trunk involved In order to act on both sets of symptoms, two operations were indicated neurolysis to free the nerve from the compression and Leriche's method of excision of the perivascular sheath of the artery The symptoms corresponded to Weir Mitchell's causalgia but Corridi prefers to call it sinestesalgia The sharp neuralgic pains appeared soon after the injury while the pains of the causalgia syndrome did *not appear until* days later and it developed gradually The neuralgic pains, the motor disturbances and the muscular trophism were all improved at once by the neurolysis, but the causalgia *persisted* unmodified

74 **The Eye Lesions of Scarlet Fever** —In an extensive epidemic of scarlet fever in the Chieta province in Italy, ten cases were encountered in which there were complications on the part of the eyes In a population of 30,000, there were 2,000 cases of scarlet fever between September, 1916, and March, 1917, with 200 deaths The eye complications included four cases of corneal ulcer, two of iritis, and four of panophthalmia, all of which developed during the course of the disease In one child the corneal ulceration entailed the loss of the aqueous humor and the child died the twelfth day In another the ulcer developed the fourth day of the disease, which otherwise was mild Keratoconus was left but there was no otitis or phlegmon The third child had multiple corneal ulcers develop about the eighth day of the disease, and the child was left blind There was evidently primary thrombus formation as occurred elsewhere in a number of other cases obstructing the femoral in one case and compelling amputation while one young woman developed paralysis in one arm In the fourth case of corneal ulceration the same mechanism was involved, the circulation in the cornea suffering but the ulcer healed, leaving merely a small leukoma which did not interfere materially with vision The iritis cases were less severe, pain and photophobia being the symptoms, with mydriasis and some exudation in the eye affected, but the whole subsided in one case under atropin In the other case the eye was finally enucleated on account of complications The trouble in these cases was not from interference with the circulation but was probably of toxic origin Two of the four cases of panophthalmia were in a young mother and her child, both dying The throat, ears and eyes were all affected, the corneas ulcerating The other two cases of panophthalmia also proved fatal, one eye having been enucleated without arresting the process The child succumbed to scarlatinal nephritis, the other to cachexia from multiple abscesses in ears, legs and neck Both parotids suppurated also The onset of the ophthalmia was stormy, the eye actually liquefying within a few days It was noticed in this epidemic that no patient ever recovered that had presented bilateral mydriasis with pericorneal injection Patients exhibiting this symptom (without signs of meningitis), apparently in good general condition, the pulse, *respiration, heart, kidneys, etc*, apparently in good order, rapidly succumbed without presenting any other lesions, the heart failing This mydriasis is probably due to lesions in the sympathetic system, or in the suprarenals first and in the sympathetic secondarily The toxic action responsible for it must have been very virulent as all such patients died within twenty-four or forty-eight hours after the mydriasis was noted

Pediatria, Naples

August XXV, No 8 pp 449 512

75 *Tartar Emetic in Treatment of Infantile Kala Azar A Longo —p 449
76 *Disease of Respiratory Apparatus in Infants Brought to Welfare Station M la Ferla —p 469
77 Importance of Radioscopy in Infantile Scurvy (Malattia di Barlow) U Provinciali —p 481

75 **Tartar Emetic in Leishmaniosis in Children** —Longo says that the most optimistic statistics mention only 10 per cent recoveries among children with infantile kala-azar, and in his region, Catania, the proportion is only 4 per cent This renders particularly noticeable his seventeen completely cured children among twenty given a thorough course of intravenous treatment with antimony and potassium tartrate, with no signs of recurrence during the three months or more since He started the treatment in a total of forty-three cases, and an additional series of twelve are still taking the course In the cured cases the children have been free from fever for three months at least and the spleen has subsided almost to or behind the costal arch Even including the others of the forty-three who did not complete the course, the record is

41 per cent recoveries During the tentative period of treatment three of the children showed symptoms of antimony poisoning but none have been noted during the year since the doses were reduced In two cases the course had been irregular and interrupted for periods up to eleven months When the drug was given later during a recurrence the germs seemed to have been rendered tartrate fast by the irregular and interrupted technic The leishmania seemed to have been mithridatized against the drug as no effect on it from the drug could be detected unless possibly an aggravating influence These children were 14 months and over 4 years old and the disease was of one and five months standing They were given a total of 1 05 and 1 4 gm of the drug in twenty-two and thirty one injections One girl of 3 threw off the kala azar completely after two injections in the course of four days and a total of only 0 08 gm of the tartrate A number of the children were withdrawn from treatment on account of the mothers dread of the intravenous technic Others died from an intercurrent acute infectious disease The attempts at rectal and intramuscular injection had to be suspended as proving less effectual than the intravenous method In conclusion Longo gives the details of six cases in which he gave the tartar emetic by the mouth The stomach does not stand the drug well and only four of his six patients were able to keep up the course There was no apparent effect from it in one child who showed no benefit likewise from the drug by intravenous injection In another the course was interrupted by whooping cough but the two others were apparently promptly cured by the drug taking a total of 0.59 and 0 63 gm The daily dose was about 0 03 or 0 04 gm and often about a quarter of it was vomited This recovery of two out of four under oral administration of tartar emetic is promising These children were 16 months and 3 years old, and the disease was of five and six months' standing

76 **Respiratory Affections in Infants**—La Ferla has been investigating parallel series of infants living at home and living in institutions in order to determine the comparative prevalence of affections of the respiratory tract among them The findings show that infants living at home and brought regularly to the welfare stations are less subject to affections of the respiratory organs, and they are less severe when they develop than in corresponding series of infants in institutions The dispensary consultations' babies thrived better and threw off their respiratory trouble more quickly than the babies taken into the hospital Of the 271 infants in question only one fifth lost much weight during the respiratory affections The children brought to the consultations averaged about three affections of the respiratory tract during the year

Policlinico, Rome

August 5 XXIV No 32 pp 977 1004

78 Trench Nephritis F Giugni—p 977
79 Nephritis in Troops on Active Service T Silvestri.—p 986
80 Approximate Dosage of Albumin in the Urine A. Angiolani—p 989

August 12 No 33 pp 1005 1032

81 *Inhalation of Ether in Treatment of Mutism, Dysphonia and Tachypnea of Hysteric Origin E Trocello—p 1005
82 Fracture of the Greater Trochanter (Frattura parcellare da strappamento del grande trocantere.) L. G Gazzotti—p 1012

August Medical Section No 8 pp 309 348

83 *Tertiary Syphilis of the Liver A. Furno—p 309
84 Improved Color Tests for Quinin D Ganassini—p 344

81 **Ether in Treatment of Hysteric Aphonia and Mutism**—Trocello reports two cases which sustain his plea for a trial of ether in all cases of hysteric mutism, aphonia or dysphonia. Simple inhalation of 20 c.c of ether in the home cured the complete mutism in the first patient, a woman of 26 It had come on suddenly with a sensation of severe constriction back of the sternum, tachypnea and hiccup, during a period of debility from severe metrorrhagia and emotional stress The woman had never presented appreciable symptoms of hysteria before. The same violent sensation of retrosternal constriction preceded the aphonia also in the second case, the patient a soldier The ether treatment failed in this case Others have called attention to the difference between the effect in mutism and dysphonia, the former being much more amenable Trocello thinks there can be no doubt that there is some connection between the retrosternal sensation of violent constriction and the vocal disturbances

83 **Tertiary Manifestations of Syphilis in the Liver**—Furno reports in detail five cases of syphilitic disease of the liver and compares them with similar cases in the literature The first presented typical syphilitic diabetes of liver origin He has been able to find on record only one other case in which the syphilitic diabetes was due exclusively to the liver The enlarged liver and the pronounced and persisting glycosuria in his case both subsided under treatment for syphilis, the glycosuria promptly disappearing as the liver returned to normal size There was nothing to indicate disease of the pancreas or a nervous origin for the glycosuria It disappeared after two injections of calomel in the course of two weeks In another case the stormy onset was supposed to be liver colic The temperature rose but then dropped to normal but rose again later Furno assumes that the colic was responsible for the fever at first and later the specific treatment In other cases also the temperature rose each time after intravenous injection of salvarsan The rise in temperature sems to be due to the action of the drug on the specific disease and is not merely a febrile reaction The temperature and other conditions grew worse under a mild mercurial and iodid course of treatment in three of the cases reported He regards this as instructive as showing, first, that the fever is actually the work of the syphilitic process, and secondly, that the process is not chronic but subacute, and in this way it serves to differentiate syphilitic from other forms of liver disease Thirdly, it explains the origin of syphilitic fever In all the five cases, specific treatment was followed by prompt subsidence of the enlarged liver, always accompanied with fever There was no fever when the liver subsided in size from other causes than specific treatment In one case in which for two weeks the true diagnosis had not been made the enlarged liver had materially subsided under repose dieting and measures to stimulate production of bile but there was no fever during this period Most writers assume that the fever is the result of absorption of the necrotic products of the gumma, but the behavior of the fever in these cases indicates rather that the heat-regulating nerve centers are irritated by the toxic products elaborated in syphilitic liver tissue Carcinoma and sarcoma are generally afebrile when located elsewhere than in the liver In his cases the pain in the liver region became much more intense under specific treatment, and there was also vomiting at the onset of the liver trouble and on beginning specific treatment Hiller has reported a case of liver syphilis with vomiting of blood There was little if any tendency to jaundice in Furno's cases This is more common with secondary syphilitic disease of the liver Any confusion with Banti's disease is out of the question if we remember Banti's words that malaria, syphilis and tuberculosis must all be excluded before accepting this diagnosis The fever following specific treatment also aids in excluding Banti's disease, as mercury iodid treatment in this disease has not been known to induce fever There was pronounced leukopeny in all of Furno's five cases In one intense headache and pain back of the sternum and in the liver were the predominant symptoms One woman of 34 had had diffuse myalgia for six weeks with chills, fever and enlargement of liver and spleen, while another woman of 54 had had pains in the bones for a few months, with intense headache, oppression and pains in the right abdomen radiating to the arm, with some fever On account of slight albuminuria she had been treated for uricacidemia but the condition grew constantly worse, with uncontrollable vomiting, abdominal pain and uremic manifestations Under specific treatment prompt improvement was realized but it proved impossible to get the liver back quite to normal proportions

Riforma Medica, Naples

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85 Diagnosis of Tuberculosis in Soldiers E Maragliano—p 749
86 Malaria in Soldiers. D Cesa Bianchi—p 752
87 Simulated or Factitious Talipes A. Mori—p 755 Commenced in No 29, p 729

Brazil-Medico, Rio de Janeiro

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88 Presumptive Diagnosis of Pellagra with Consecutive Polyneuritis in Man of Thirty Two C de Rezende—p 225

Cronica Medica, Lima, Peru

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89 The Etiologic Factors of Mental Disease through the History of Peru H Valdizan—p 221
90 *The Fibrous Form of Pulmonary Tuberculosis A Corvetto—p 236
91 Present Status of Vaccination against Typhoid C A Bambaren—p 243

90 **Dense Fibrous Form of Pulmonary Tuberculosis**—Corvetto's cases of this type began very slowly and insidiously and hemoptysis was the most constant symptom, coming on at any stage of the disease It is not formed of pure blood, a hemorrhagic pneumonia is responsible for it, not an ulceration The diaphragm is higher on the side affected The general condition may keep good for a long time, one of his patients showed little disturbance for ten years, but the disease progresses inexorably to a fatal termination in time This can be postponed by hygiene and avoidance of fatigue and other harmful factors Such patients are usually between 40 and 60, but the young do not escape The heart becomes compromised comparatively early, and everything that strains the heart must be avoided A mild, sheltered climate is better than altitude for the older patients There is little if any fever with this dense fibrous type Tuberculin has done more harm than good in these cases in his experience, and artificial pneumothorax has little prospect of success This should be reserved for the rapidly spreading forms of tuberculosis, especially the unilateral The dense fibrous type usually affects both lungs

Revista de Medicina y Cirugia, Havana

August, XXII No 10, pp 373 422

92 Celebration of Santos Fernandez' Seventieth Birthday J P Arteaga—p 373 Mentioned in The Journal, August 25, p 660

Hospitalstidende, Copenhagen

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93 Heart Block in Upper Portion of His Tawara Bundle, Four Cases V C E Petersen—p 669

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94 *Status Epilepticus in the Pregnant V Albeck—p 693
95 *Spontaneous Rupture of the Rectum E Henningsen—p 702

94 **Status Epilepticus in the Pregnant**—Albeck's experience has convinced him that status epilepticus in pregnant or parturient women is not so exceptional as would appear from the records, but it is often mistaken for eclampsia Differentiation is particularly difficult when the epileptic seizures are accompanied by albuminuria and edema, as in his three cases The fact that the patient is known to be an epileptic or that the convulsions have recurred at previous pregnancies, speaks for the epileptic nature of the trouble, as eclampsia, he says, so good as never occurs twice in the same individual The blood pressure may also aid in differentiation, a normal or nearly normal blood pressure is not found in eclampsia In five cases on record of status epilepticus in pregnant or parturient women all terminated fatally, but Jardine has reported a case at the eighth month and the woman recovered after cesarean section Albeck systematically interrupted the pregnancy in his three cases, by instrumental dilatation or cesarean section, and all the women recovered He thinks that a latent or frank tendency to epilepsy is roused by some pregnancy intoxication He has had 151 cases of what he calls eclampsism among 3,000 pregnant women, in one case it was pronounced in an epileptic woman for a few weeks before delivery but yet status epilepticus did not develop, and a living child was delivered *by section* at term This patient had been given potassium bromid regularly from the first symptoms None of the women thus treated developed status epilepticus, but when it was already installed, he did not venture to allow the pregnancy to continue but interrupted it at once The outcome in his three cases testifies to the wisdom of this method of treating status epilepticus in a woman suffering from pregnancy intoxication

95 **Spontaneous Rupture of the Rectum**—Henningsen's two patients were men of 57 and 59 The first had been harvesting turnips when he felt a sudden sharp pain in the lower abdomen and he went at once to bed There was some nausea but no vomiting, hiccup, stools or flatus The abdomen was slightly tender throughout, the percussion findings were practically normal and nothing abnormal was found on exploring the rectum Cancer was surmised, but as the condition was not alarming the patient was merely kept under surveillance, some flatus was passed and a small bowel movement followed an enema There was also a little vomiting but not ill smelling The third day conditions grew rapidly worse and laparotomy revealed a minute perforation in the upper end of the rectum It was sutured through an incision in the left iliac fossa but the man died the seventh day from diffuse fibrinous peritonitis Nothing could be found to explain the perforation in this or in the second case In the latter there had been no trauma, no exertion, and there had been an interval of five hours since the last and entirely natural defecation Except for gastric ulcer twelve years before, the man had been clinically healthy Three hours after dinner he felt a sudden and intense pain in the abdomen The physician could find nothing abnormal in the abdomen or rectum but relieved the pain with morphin By the next day the abdomen was diffusely tender, rigid and drawn in and the temperature had gone up a little At the laparotomy no trace of the assumed gastric ulcer could be found and the trouble was traced to a perforation with sharp edges, about 2 cm long and 1 cm wide, lengthwise of the middle of the rectum It was sutured through an incision in the right iliac fossa, but death soon followed In this case absolutely nothing to explain the rupture was found at the time or at necropsy

Ugeskrift for Læger, Copenhagen

May 31, LXXIX No 22, pp 855 898

96 *Early Diagnosis of Liver Disease by Functional Tests J P Gregersen—p 855 Commenced in No 21, p 831

96 **Clinical Significance of Urobilinuria**—Gregersen's conclusions as to the great diagnostic importance of urobilinuria are based on research on very nearly 400 persons, including 50 healthy, 42 with nephritis, 35 with gastric ulcer, 28 with diabetes, 31 with neurasthenia, 20 with chronic polyarthritis and other patients bringing the total to thirty-eight different diseases or affections thus tested The urine was examined three or four times or more in nearly every case, and always more than once A positive response to the test for urobilinuria was never obtained in the healthy or in those diseases in which the liver is not involved, regardless of the diet But urobilinuria is the rule in all febrile conditions, the liver evidently suffering in all such This must always be borne in mind in examining persons who have or have had fever within a few days Even extensive cancer does not induce urobilinuria unless there is compression or other injury of the biliary apparatus With chlorosis and secondary anemia there is no urobilinuria, while it is constant with pernicious anemia, probably the great destruction of reds imposes such extra tasks on the liver that it becomes insufficient.

Urobilinuria is the invariable accompaniment of disease of the liver It is probably the first appreciable symptom of incipient cirrhosis of the liver and the first symptom of beginning obstruction of the outflow of bile, and it is the last to disappear when the stasis of bile has been corrected When the obstruction to the bile is so complete that no bile gets into the intestines, there can be no urobilinuria, hence the absence of urobilinuria in such conditions testifies to complete obstruction of the bile passage He adds that the test for urobilinuria is simple and easy by a modification of Schlesinger's technic Add 2 or 3 drops of tincture of iodin to 10 c c urine, and thereafter 10 c c of a 1 per cent suspension of zinc acetate in absolute alcohol Agitate well and filter In the presence of urobilin there will be a green fluorescence in the filtrate This reaction persists for several days even with bacterial decomposition It does not reveal and does not seem to be modified by albumin, pus, blood, sugar or bile pigment in the urine